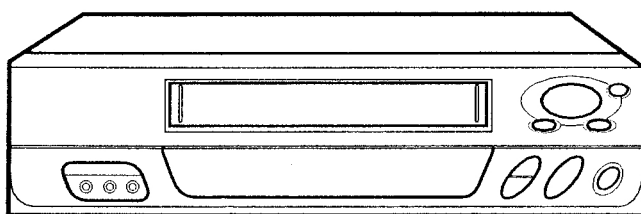


TEVION®

SERVICE MANUAL

VIDEO CASSETTE RECORDER



**ORIGINAL
CHASSIS CODE A**

SERVICING NOTICES ON CHECKING

1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

2. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

3. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

4. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the CHASSIS CODE.)

1. MODEL NUMBER and CHASSIS CODE

You can find it in the back of your unit.

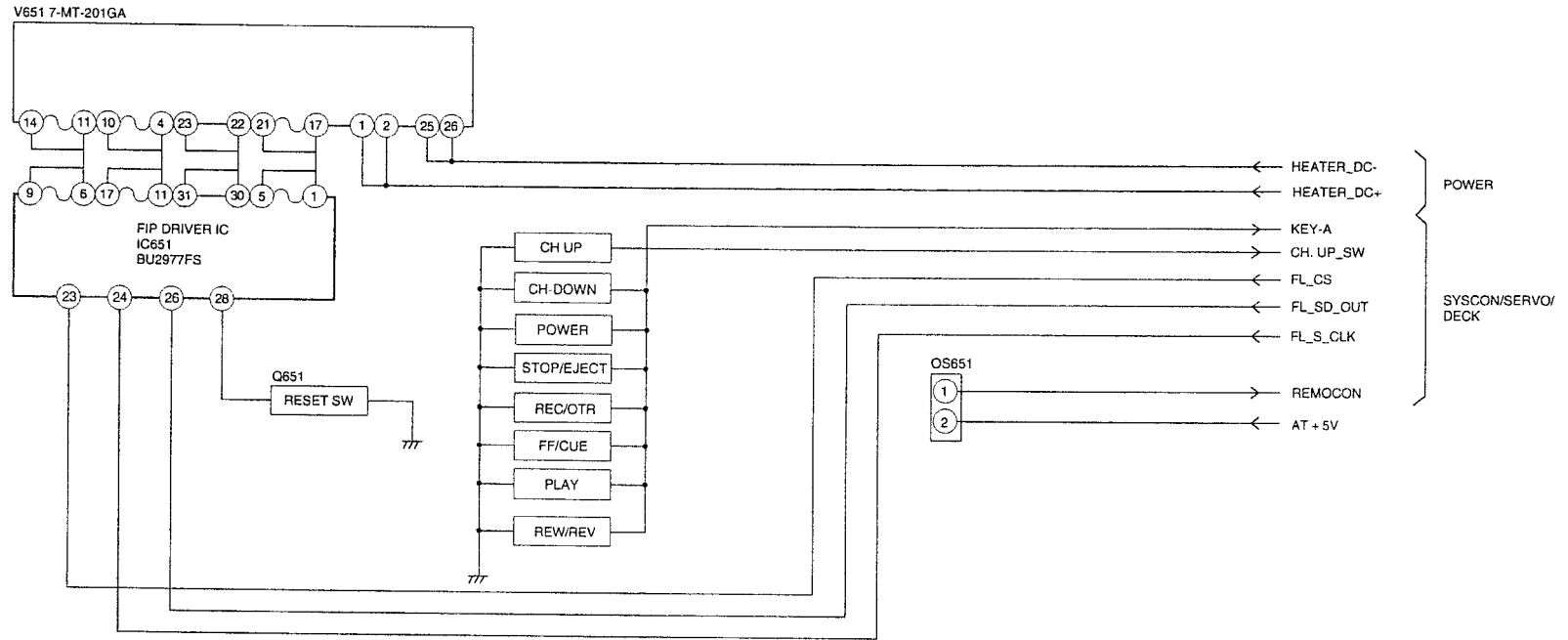
2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

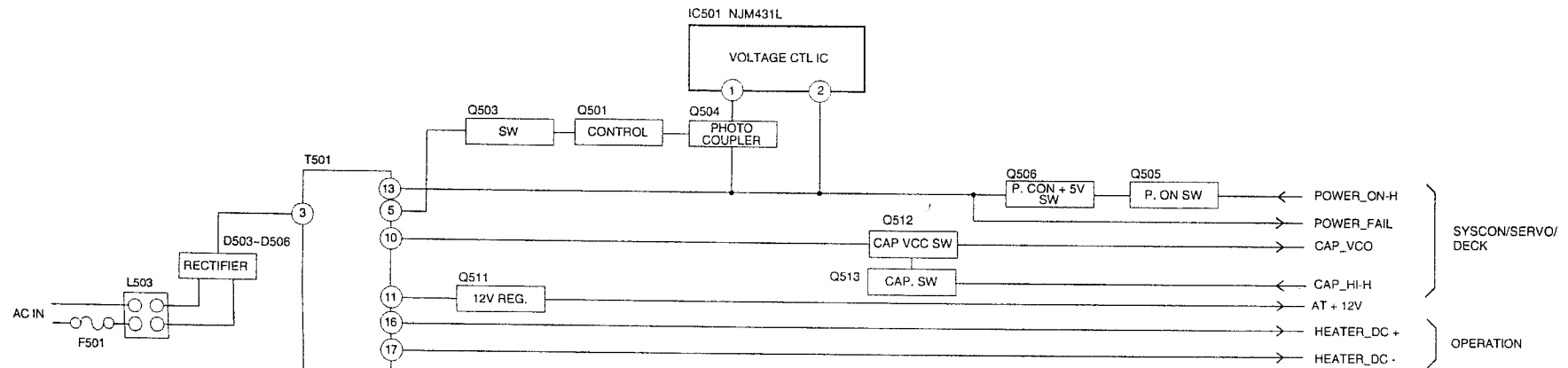


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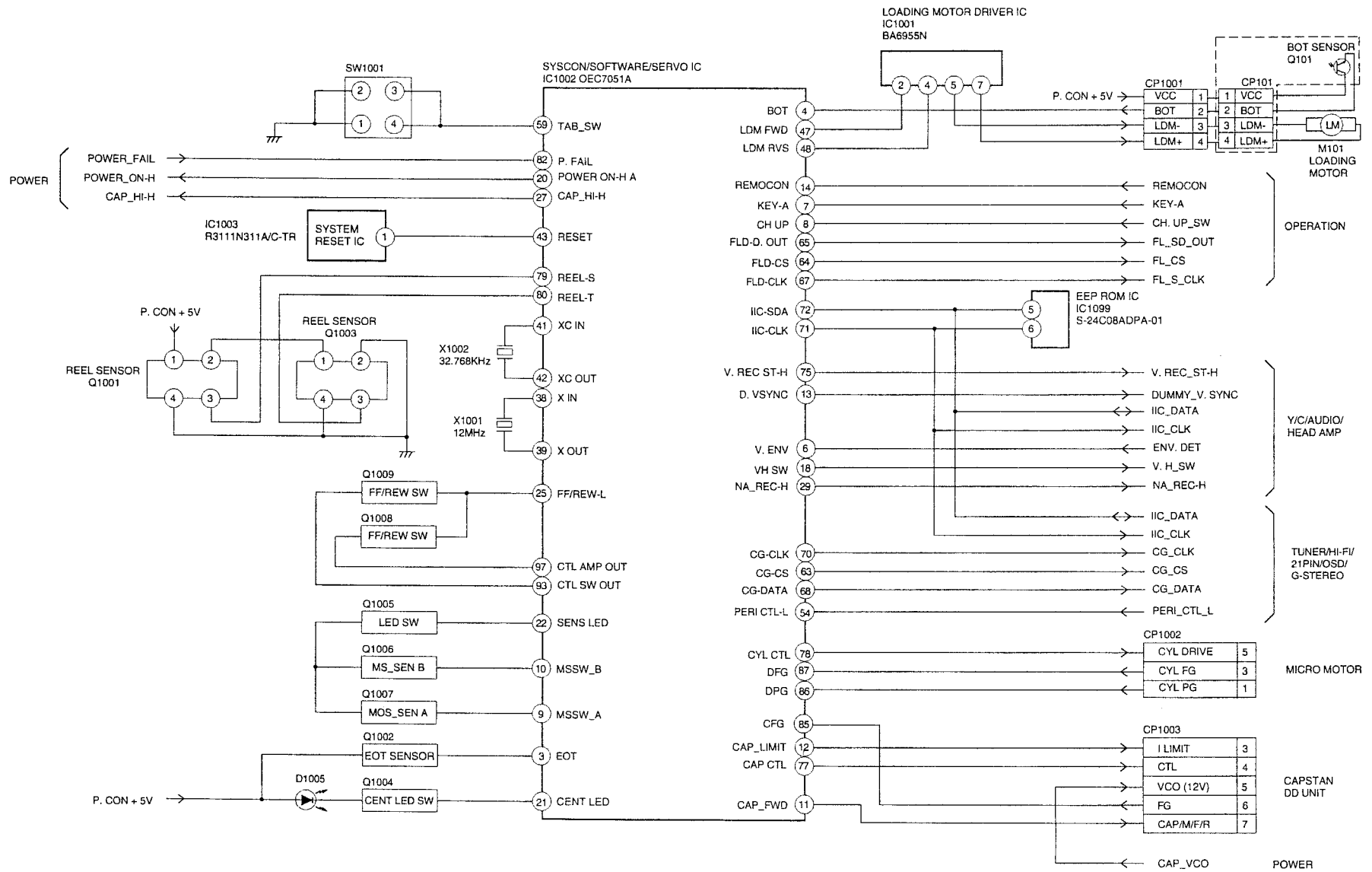
OPERATION BLOCK DIAGRAM



POWER BLOCK DIAGRAM



SYSTEM CONTROL/SERVO/DECK BLOCK DIAGRAM



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GENERAL SPECIFICATIONS

G-1.Outline of the Product

_____2_____ -Speed 1/2" Video Cassette Recorder

G-2.VCR Format

VHS Standard ☐NTSC ☒PAL ☐SECAM ☐PAL-M ☐PAL-N
☒VHS Hi-Fi Audio System

G-3.Video Recording System

: Rotary, slant azimuth two head helical scan system

Luminance Component : FM recording

Chrominance Component: Low frequency converted direct recording

G-4.Broadcasting System

_____CCIR_____ System _____B/G_____

G-5.Color System

☐NTSC ☒PAL ☐SECAM or Monochrome

G-6.NTSC Playback(PAL60Hz)

☒Yes ☐No

G-7.MESECAM

☐Yes ☒No

G-8.Cassette Tape

☒VHS type video cassette tape Width 12.65mm (1/2 Inch)

☐VHS-C type video cassette tape Width 12.65mm (1/2 Inch)

G-9.Tape Speed

NTSC or PAL-M

PAL or SECAM

☒SP 33.35 mm/sec

☒SP 23.39 mm/sec

☐LP 16.67 mm/sec

☒LP 11.69 mm/sec

☐SLP 11.12 mm/sec

G-10.Recording/Playback Time

NTSC or PAL-M(NTSC Playback Only)

☒at SP Mode Max. 210 min. (with T-210 cassette)

☐at LP Mode Max. 420 min. (with T-210 cassette)

☐at SLP Mode Max. 630 min. (with T-210 cassette)

PAL or SECAM

☒at SP Mode Max. 300 min. (with E-300 cassette)

☒at LP Mode Max. 600 min. (with E-300 cassette)

G-11.Deck

☐OVD-5 ☐OVD-6 ☒OVD-6S ☐OVD-6S(Vertical)

G-12.Rewind/Fast Forward Time(Approx.)

☒ FF: 1'30"/Rew:1'12" (with ☐T-120 cassette ☒E-180 cassette)

G-13.Search Speed

☒SP 5 and 7 Times (PAL)

☒LP 7 and 13 Times (PAL)

☒SP 3 and 5 Times (NTSC)

G-14.Slow Speed

☒SP 1/5~1/30 Times

☒LP 1/5~1/30 Times

☐SLP _____ Times

G-15.Frame Advance

☒SP 1/10 Times

☒LP 1/10 Times

☐SLP _____ Times

G-16.Antenna Input Impedance

VHF/UHF 75 ohm unbalanced

GENERAL SPECIFICATIONS

G-17.Tuner and Receiving Channel

Tuner: Contactless Electric Tuner

☐Oscar(W/O HYPER) ☒Oscar(W/ HYPER) ☐France CATV ☐Others

Coverage channel

E 2~E4, X~Z+2, S1~S10, E5~E12, S11~S41, E21~E69

Tuning System

☒Frequency syn. ☐Voltage syn. ☐Others

G-18.Preset Channel

80 channels

G-19.Intermediate Frequency

Picture(FP)	<u>38.9</u> MHz	<u> </u> MHz	<u> </u> MHz
Sound (FS)	<u>33.4</u> MHz	<u> </u> MHz	<u> </u> MHz
FP-FS	<u>5.5</u> MHz	<u> </u> MHz	<u> </u> MHz

G-20.RF Converter Output

Channel	<u>36</u> ch.	<u>23</u> ~ <u>69</u>
Level/Impedance	<u>73</u> dBμ /	<u>75</u> ohm
Sound Selector	<input type="checkbox"/> Yes(<input type="checkbox"/> G <input type="checkbox"/> I <input type="checkbox"/> K) <input checked="" type="checkbox"/> No	

G-21.Stereo/Dual TV Sound

☒Yes(☐NICAM) ☒GERMAN ☐USA ☐JAPAN) ☐No

G-22.Tuner Sound Muting

☒Yes ☐No

G-23.Video Signal

Input Level	<u>1</u> Vp-p /	<u>75</u> ohm
Output Level	<u>1</u> Vp-p /	<u>75</u> ohm
S/N Ratio	<u>53</u> dB	(Weighted)
Horizontal Resolution at SP Mode	<u>240</u> Lines	

G-24.Audio Signal

Input Level	Microphone	<u>-</u> dB /	<u>-</u> Kohm
	Line	<u>-3.8</u> dB /	<u>50</u> Kohm
	RCA	<u>-3.8</u> dB /	<u>50</u> Kohm
Output Level	Line	<u>-3.8</u> dB /	<u>1</u> Kohm
	RCA	<u>-3.8</u> dB /	<u>1</u> Kohm(0dB=0.775 Vrms)
S/N Ratio at SP Mode		<u>42</u> dB	(Weighted)
Harmonic Distortion :		<u>1.5</u> %	(1KHz)
Frequency Response :	at SP Mode	<u>100</u> Hz	~ <u>10</u> KHz
	at LP Mode	<u>100</u> Hz	~ <u>5</u> KHz
	at SLP Mode	<u> </u> Hz	~ <u> </u> KHz

Hi-Fi Model's Spec ☐NONE

Depth Multiplex Recording Rotary, Slant Azimuth Two Head

System Helical Scan System

Dynamic Range : More than 75 dB

Wow And Flutter : Less than 0.01 % Wrms

Channel Separation : More than 60 dB

Harmonic Distortion : Less than 1 %

G-25.Heads

Video	<input checked="" type="checkbox"/>	<u>4</u>	Rotary Heads
FM Audio	<input checked="" type="checkbox"/>	<u>2</u>	Rotary Heads
Audio / Control	<input checked="" type="checkbox"/>	<u>1</u>	Stationary Head (<input checked="" type="checkbox"/> Mono <input type="checkbox"/> Stereo(L,R))
Erase	<input checked="" type="checkbox"/>	<u>1</u>	Full Track Erase

G-26.Motor: 3 Motors

☒Tape/Cassette Loading
☒Cylinder (Direct Drive)
☒Capstan (Direct Drive)

G-27.Power Source

230 V ☒AC 50Hz ☐AC 60Hz

GENERAL SPECIFICATIONS

G-28.Power Consumption: 14.0 W at AC 230 V 50 Hz(Approx.)
 Stand by: 4.0 W at AC 230 V 50 Hz(Approx.)
 Per Year: - kWh / Year

G-29.Dimensions(Approx.)

380 mm(W) 268 mm(D) 95 mm(H)

G-30.Weight(Approx.) Net : 3.5 Kg (- lbs)
 Gross : 4.5 Kg (- lbs)

G-31.Cabinet Material

Cabinet Front: ☒PS ☒94HB ☐DECABROM
☐ABS ☐94V2 ☐NON-DECA
☐94V0

G-32.Cassette Loading System: Front Cassette Loading System

G-33.Tape Counter: Linear Time Tape Counter

G-34.Protector: ☒Power Fuse ☐Dew Sensor

G-35.Regulation

Safety

<input type="checkbox"/> UL	<input type="checkbox"/> CSA	<input type="checkbox"/> SAA	<input type="checkbox"/> SI	<input checked="" type="checkbox"/> CE	<input type="checkbox"/> SEV
<input type="checkbox"/> NEMKO	<input type="checkbox"/> FEMKO	<input type="checkbox"/> DEMKO	<input type="checkbox"/> IEC65	<input type="checkbox"/> CNS	<input type="checkbox"/> SISIR
<input type="checkbox"/> SEMKO	<input type="checkbox"/> NZ	<input type="checkbox"/> HOMOLO	<input type="checkbox"/> SABS	<input type="checkbox"/> GOST	
<input type="checkbox"/> NOM	<input type="checkbox"/> AS3159	<input type="checkbox"/> DENTORI	<input type="checkbox"/> UNE	<input type="checkbox"/> NONE	

Radiation

<input type="checkbox"/> FCC	<input type="checkbox"/> DOC	<input type="checkbox"/> PTT	<input checked="" type="checkbox"/> CE	<input type="checkbox"/> SEV
<input type="checkbox"/> SABA	<input type="checkbox"/> SI	<input type="checkbox"/> NZ	<input type="checkbox"/> HOMOLO	<input type="checkbox"/> UNE
<input type="checkbox"/> CNS	<input type="checkbox"/> CISPR13	<input type="checkbox"/> DENTORI	<input type="checkbox"/> AS/NZS	<input type="checkbox"/> NONE

G-36.Temperature

Operation 5 °C ~ 40 °C
 Storage -20 °C ~ 60 °C

G-37.Operating Humidity : Less than 80 %RH

G-38.Clock and Timer

Calendar : 1990/1/1 ~ 2081/12/31
 Built-in 1 Month 8 Events Programmable Timer
 One Touch Recording : Max Time SP 5 , LP 10 Hours

G-39.Timer back up Time

More than 30 Minutes (at Power Off Mode)

G-40.Terminals

☒VHF/UHF Antenna Input/Output ☒Din Type ☐F-Type ☐France Type
☒Front Video Input<RCA ø8.3>
☒Front Audio Input<RCA ø8.3> x2
☐Rear Video Input<RCA ø8.3>
☐Rear Audio Input<RCA ø8.3>
☐Rear Video Output<RCA ø8.3>
☒Rear Audio Output<RCA ø8.3> x2
☒21 Pin (x 2)

G-41.Indicator

<input type="checkbox"/> Power ()	<input type="checkbox"/> Stand By ()	<input type="checkbox"/> Rec ()	<input type="checkbox"/> Repeat ()	<input type="checkbox"/> Tape In ()
<input type="checkbox"/> Kurupika Guide ()	<input type="checkbox"/> One Touch Playback ()			

GENERAL SPECIFICATIONS

G-42.Display

Fluorescent Indicator

- | | | | |
|---|---|---|---|
| <input checked="" type="checkbox"/> Clock/Counter, Channel, Timer Rec, OTR, Play, Rec, FF(Cue), Rew(Rev), | | | |
| Stop, ATR, Eject | | <input checked="" type="checkbox"/> Pause | <input checked="" type="checkbox"/> Still |
| <input type="checkbox"/> WKL, Y.M.D, Start, End | | <input type="checkbox"/> AFT | <input type="checkbox"/> Repeat |
| <input checked="" type="checkbox"/> VCR | <input type="checkbox"/> Memory | <input type="checkbox"/> Index | <input checked="" type="checkbox"/> VPS |
| <input checked="" type="checkbox"/> SP | <input checked="" type="checkbox"/> LP <input type="checkbox"/> SLP | <input type="checkbox"/> AM | <input type="checkbox"/> PM |
| <input checked="" type="checkbox"/> F1,F2 | <input checked="" type="checkbox"/> RF-Output CH | | |

On Screen Display

- | | | |
|---|--|---|
| <input checked="" type="checkbox"/> Menu | <input checked="" type="checkbox"/> ATS | |
| <input checked="" type="checkbox"/> Timer Rec Set | | |
| <input checked="" type="checkbox"/> VCR Extension | | <input checked="" type="checkbox"/> Auto Repeat On/Off |
| | | <input checked="" type="checkbox"/> Scene Repeat |
| | | <input checked="" type="checkbox"/> Audio Dubbing |
| <input checked="" type="checkbox"/> VCR Set-Up | | <input type="checkbox"/> NICAM Auto/Off |
| | | <input checked="" type="checkbox"/> Audio Mix On/Off |
| | | <input type="checkbox"/> Color System |
| | | <input checked="" type="checkbox"/> Sharpness |
| | | <input checked="" type="checkbox"/> BBE On/Off |
| <input checked="" type="checkbox"/> CH Set-Up | | <input checked="" type="checkbox"/> CH Tuning <input type="checkbox"/> Auto Tuning |
| | | <input checked="" type="checkbox"/> CH Mapping |
| <input checked="" type="checkbox"/> System Set-Up | | <input checked="" type="checkbox"/> Clock Set(<input checked="" type="checkbox"/> Calendar <input type="checkbox"/> 12H <input checked="" type="checkbox"/> 24H) |
| | | <input checked="" type="checkbox"/> Language |
| <input checked="" type="checkbox"/> G-CODE(or SHOWVIEW or PLUSCODE)No. Entry | | |
| <input type="checkbox"/> NICAM M1/2, NICAM Off, Audio Output | | |
| <input checked="" type="checkbox"/> Stereo, Audio Output, Bilingual | | |
| <input type="checkbox"/> Stereo, Audio Output | | |
| <input checked="" type="checkbox"/> Play/Stop/FF/Rew/Rec/OTR/Pause/Tape In/Eject(Symbol Mark) | | |
| <input checked="" type="checkbox"/> CH/AV | <input checked="" type="checkbox"/> Clock/Date | <input type="checkbox"/> Repeat |
| <input checked="" type="checkbox"/> Tape Counter | <input checked="" type="checkbox"/> Index | <input type="checkbox"/> Hotel Lock |
| <input checked="" type="checkbox"/> Manual Tracking(Bar Setting) | | <input checked="" type="checkbox"/> Tape Speed |
| <input checked="" type="checkbox"/> VPS | <input type="checkbox"/> PDC | <input checked="" type="checkbox"/> S-Repeat/SR-R/SR-PLAY |
| | | <input checked="" type="checkbox"/> Rec END Search |

G-43.OSD Language

- ☒ Eng ☒ Ger ☒ Fre ☒ Spa ☒ Ita ☐ Por ☐ Jan

OSD Language Setting

- ☐ Eng ☒ Ger ☐ Fre ☐ Spa ☐ Ita ☐ Por ☐ Jan
- ☐ Not Applicable

G-44.Carton

Master Carton: ☐ Need ☒ No Need

Content: _____ Set

Material: _____ / _____ Corrugated Carton

Dimensions: _____ mm(W) _____ mm(D) _____ mm(H)

Description of Origin ☐ Yes ☐ No

Gift Box ☒ Need(Buyer Supply) ☐ No Need

Material ☐ Single/Brown Corrugated Carton (☐ with Photo Label)

☐ Single/White Corrugated Carton (☐ with Photo Label)

☒ Single Full Color Carton W/Photo

Dimensions: _____ mm(W) _____ mm(D) _____ mm(H)

Design: As Per _____ 's

Description of Origin: ☐ Yes ☐ No

Drop Test Natural Dropping At 1 Corner / 3 Edges / 6 Surfaces

Height ☐ 25cm ☐ 31cm ☐ 46cm ☐ 62cm ☒ 80cm ☐ 100cm

Container Stuffing: 2,206 Sets / 40' container

GENERAL SPECIFICATIONS

G-45.Accessories

- | | |
|--|--|
| <input checked="" type="checkbox"/> Owner's Manual (<input checked="" type="checkbox"/> W/ Guarantee Card) [German] | <input type="checkbox"/> Dew Caution Sheet |
| <input checked="" type="checkbox"/> Remote Control Unit | <input checked="" type="checkbox"/> Battery (UM- <u>4</u> x <u>2</u>) |
| <input type="checkbox"/> Video Cassette Tape | <input type="checkbox"/> Toll Free Insert Sheet |
| <input type="checkbox"/> Safety Tip | <input type="checkbox"/> Audio-Video Cord (RCA) |
| <input type="checkbox"/> Guarantee Card | <input checked="" type="checkbox"/> Quick Set-Up Sheet |
| <input type="checkbox"/> Warning Sheet | <input type="checkbox"/> U/V Mixer |
| <input type="checkbox"/> Information Sheet | |
| <input checked="" type="checkbox"/> 75 ohm Coaxial Cable (<input type="checkbox"/> Single Shield <input checked="" type="checkbox"/> Double Shield) | |
| <input type="checkbox"/> 300 ohm to 75 ohm VHF Antenna Adaptor | |
| <input checked="" type="checkbox"/> 21pin Cable(Buyer Supply) | <input type="checkbox"/> Car Cord |

G-46.Other Features

- | | |
|---|---|
| <input checked="" type="checkbox"/> Auto Head Cleaning | <input checked="" type="checkbox"/> Index Search |
| <input checked="" type="checkbox"/> Auto Tracking | <input checked="" type="checkbox"/> Auto Search |
| <input type="checkbox"/> CH Auto Set-Up/Auto Clock | <input checked="" type="checkbox"/> ATS |
| <input checked="" type="checkbox"/> VIDEO PLUS+, SHOWVIEW, G-CODE | <input type="checkbox"/> PDC |
| <input checked="" type="checkbox"/> HQ (VHS Standard High Quality) | <input checked="" type="checkbox"/> VPS |
| <input checked="" type="checkbox"/> Auto Power On, Auto Play, Auto Rewind, Auto Eject, Auto Power Off | |
| <input checked="" type="checkbox"/> Premiere/ Canal+ | |
| <input checked="" type="checkbox"/> Forward / Reverse Picture Search | |
| <input type="checkbox"/> One Touch Playback | |
| <input type="checkbox"/> CATV | <input type="checkbox"/> Channel Lock |
| <input type="checkbox"/> Auto CH Memory | <input type="checkbox"/> Anti Theft |
| <input type="checkbox"/> Hotel Lock | <input type="checkbox"/> CM Skip |
| <input checked="" type="checkbox"/> Audio Dubbing | <input checked="" type="checkbox"/> Remote Control Code 1/2 |
| <input checked="" type="checkbox"/> BBE Audio | <input checked="" type="checkbox"/> Rec END Search |

G-47.Switch

Front

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Power | <input checked="" type="checkbox"/> Channel Up | <input checked="" type="checkbox"/> Channel Down |
| <input checked="" type="checkbox"/> Play | <input checked="" type="checkbox"/> F.FWD/Cue | <input checked="" type="checkbox"/> Rew/Rev |
| <input type="checkbox"/> Pause/Still | <input checked="" type="checkbox"/> Eject/Stop | <input checked="" type="checkbox"/> Rec/OTR |
| <input type="checkbox"/> System Select | <input type="checkbox"/> Input Select | <input type="checkbox"/> Output Select |
| <input type="checkbox"/> One Touch Playback | | |

Rear

- ☐ RF-Converter Output Channel Selector(☐ 1 or 2CH ☐ 3 or 4CH)
- ☐ TV/CATV Selector
- ☐ SIF Selector

GENERAL SPECIFICATIONS

G-48.Remote Control

Unit: RC-DK

Glow in the Dark Remocon ☐ Yes

☒ No

Power Source: D.C. 3 V Battery UM - 4 x 2

Total 35 Keys

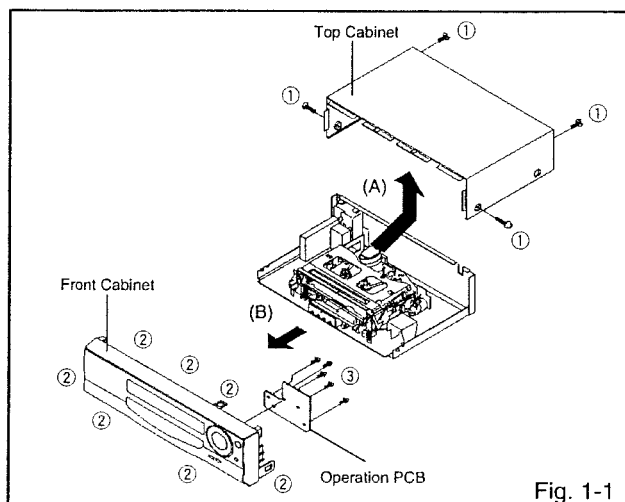
- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> 0/AV | <input checked="" type="checkbox"/> Ch Up/Tr Up | <input checked="" type="checkbox"/> Power |
| <input checked="" type="checkbox"/> 1 | <input checked="" type="checkbox"/> Ch Down/Tr Down | <input checked="" type="checkbox"/> Play/Up(<input checked="" type="checkbox"/> /Slow) |
| <input checked="" type="checkbox"/> 2 | <input type="checkbox"/> /. | <input checked="" type="checkbox"/> F.FWD/Right |
| <input checked="" type="checkbox"/> 3 | <input checked="" type="checkbox"/> TV/VCR | <input checked="" type="checkbox"/> Rew/Left |
| <input checked="" type="checkbox"/> 4 | <input checked="" type="checkbox"/> Menu | <input checked="" type="checkbox"/> Stop/Down |
| <input checked="" type="checkbox"/> 5 | <input checked="" type="checkbox"/> Enter | <input checked="" type="checkbox"/> REC/OTR |
| <input checked="" type="checkbox"/> 6 | <input checked="" type="checkbox"/> Cancel/CH Skip | <input checked="" type="checkbox"/> Timer Rec |
| <input checked="" type="checkbox"/> 7 | <input checked="" type="checkbox"/> Call | <input checked="" type="checkbox"/> Zero Return |
| <input checked="" type="checkbox"/> 8 | <input checked="" type="checkbox"/> Speed | <input checked="" type="checkbox"/> Counter Reset |
| <input checked="" type="checkbox"/> 9 | <input checked="" type="checkbox"/> Index | <input checked="" type="checkbox"/> Clock/Counter |
| <input type="checkbox"/> Deck-1 | <input checked="" type="checkbox"/> Eject | <input checked="" type="checkbox"/> Pause(<input checked="" type="checkbox"/> /Still) |
| <input type="checkbox"/> Deck-2 | <input checked="" type="checkbox"/> Auto Tracking | <input checked="" type="checkbox"/> END Search |
| <input type="checkbox"/> Tape Mode | <input type="checkbox"/> Audio Dubbing | <input checked="" type="checkbox"/> Audio Select |
| <input type="checkbox"/> Synchro Start | <input type="checkbox"/> Output Select | <input type="checkbox"/> Input Select |
| <input checked="" type="checkbox"/> Program(<input checked="" type="checkbox"/> /Video Plus+ or ShowView) | | |

DISASSEMBLY INSTRUCTIONS

1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

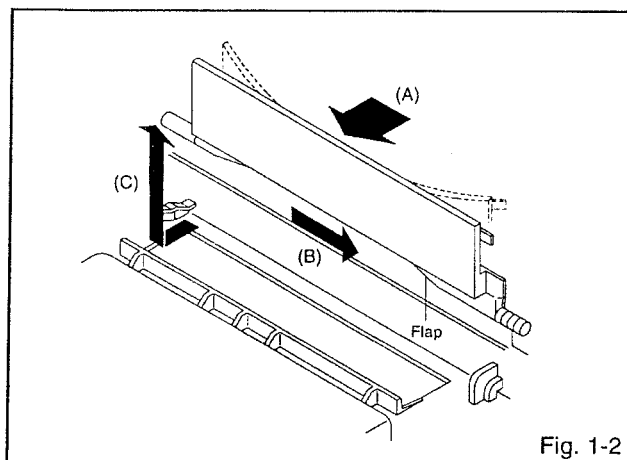
1-1: TOP CABINET, FRONT CABINET AND OPERATION PCB (Refer to Fig. 1-1)

1. Remove the 4 screws ①.
2. Remove the Top Cabinet in the direction of arrow (A).
3. Disconnect the following connector: (CP651).
4. Unlock the 7 supports ②.
5. Remove the Front Cabinet in the direction of arrow (B).
6. Remove the 5 screws ③ and remove the Operation PCB.



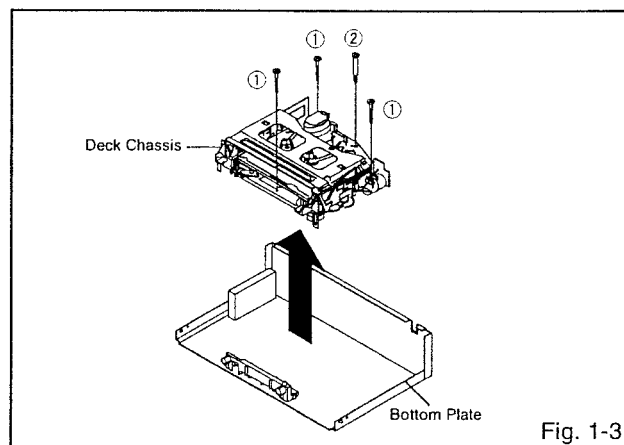
1-2: FLAP (Refer to Fig. 1-2)

1. Open Flap to 90° and flex in direction of arrow (A), at the same time slide in direction of arrow (B).
2. Then lift in direction of arrow (C).



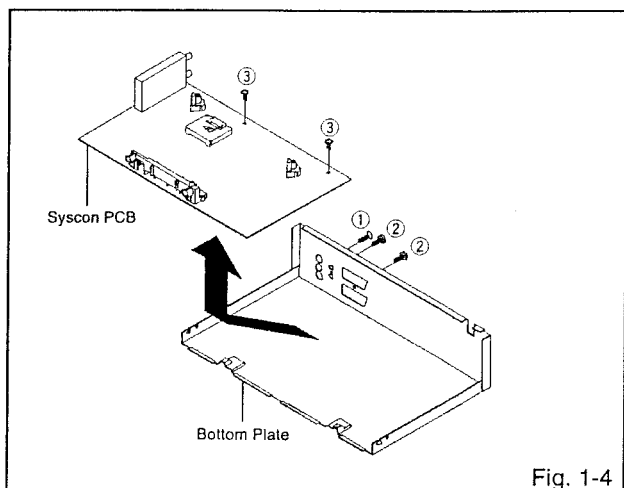
1-3: DECK CHASSIS (Refer to Fig. 1-3)

1. Remove the 3 screws ①.
2. Remove the screw ②.
3. Disconnect the following connectors: (CP1001, CP1002, CP1003, CP4001, CP4002 and CP4003).
4. Remove the Deck Chassis in the direction of arrow.



1-4: SYSCON PCB (Refer to Fig. 1-4)

1. Remove the screw ①.
2. Remove the 2 screws ②.
3. Remove the 2 screws ③.
4. Remove the Syscon PCB in the direction of arrow.



DISASSEMBLY INSTRUCTIONS

2. REMOVAL OF DECK PARTS

2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Remove the 2 screws ①.
2. Slide the 2 supports ② and remove the Top Bracket.

NOTE

When you install the Top Bracket, install the screw (1) first, then install the screw (2).

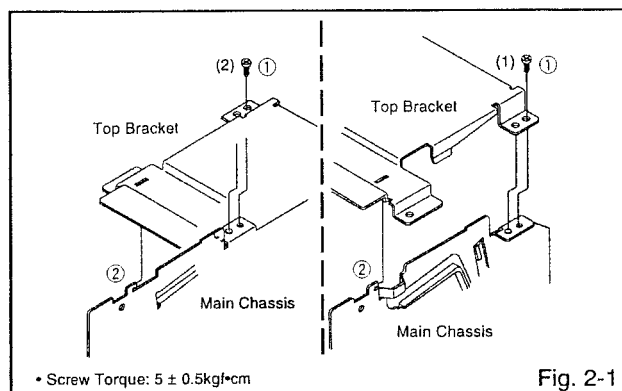


Fig. 2-1

2-2: DECK COVER/FLAP LEVER/TAPE GUIDE R (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the support ① and remove the Deck Cover.
3. Remove the Polyslider Washer ②.
4. Remove the Flap Lever.
5. Unlock the 3 supports ③ and remove the Tape Guide R.

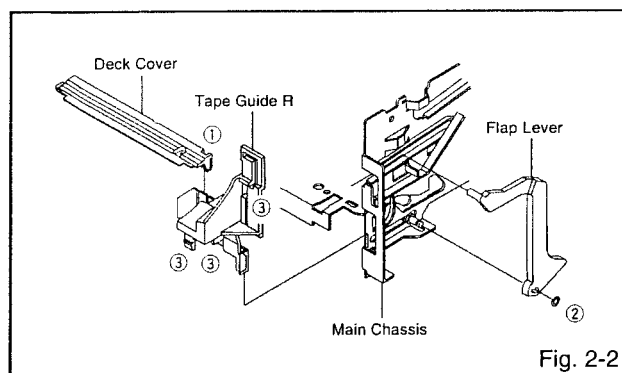


Fig. 2-2

2-3: TAPE GUIDE L (Refer to Fig. 2-3-A)

1. Move the Cassette Holder Ass'y to the back side.
2. Unlock the 2 supports ① and remove the Tape Guide L.
3. Remove the REC Lever. (Recorder only)

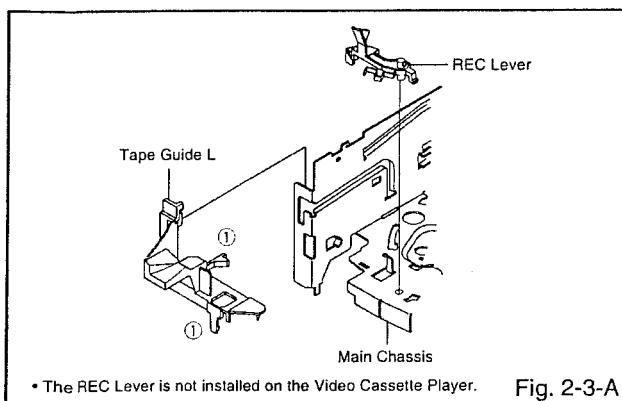


Fig. 2-3-A

NOTE

When you install the Tape Guide L, install as shown in the circle of Fig. 2-3-B. (Refer to Fig. 2-3-B)

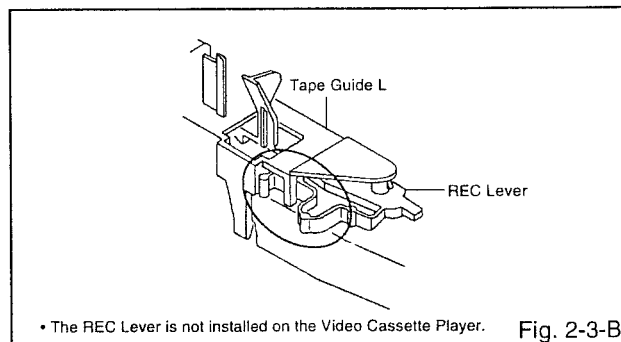


Fig. 2-3-B

2-4: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-4)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

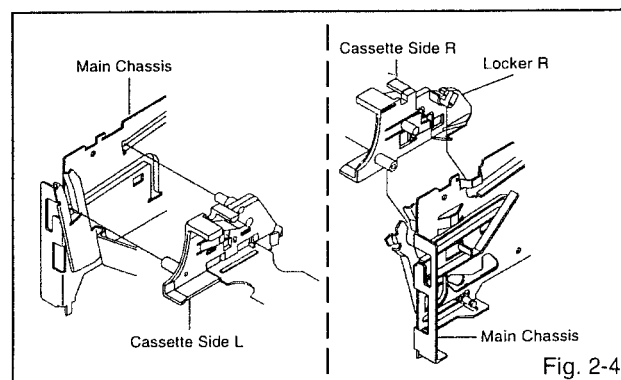


Fig. 2-4

2-5: CASSETTE SIDE L/R (Refer to Fig. 2-5)

1. Unlock the 4 supports ① and then remove the Cassette Side L/R.

NOTE

When you install the Cassette Side R, be sure to move the Locker R after installing.

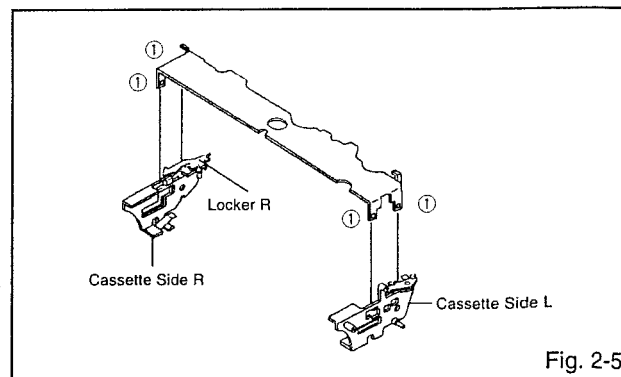


Fig. 2-5

DISASSEMBLY INSTRUCTIONS

2-6: LINK ASS'Y (Refer to Fig. 2-6)

1. Set the Link Ass'y to the Eject position.
2. Remove the (A) side of the Link Ass'y first, then remove the (B) side.

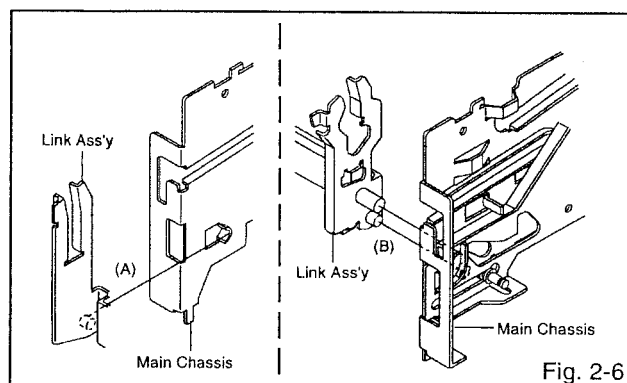


Fig. 2-6

2-7: LOADING MOTOR ASS'Y (Refer to Fig. 2-7)

1. Remove the Link Lever.
2. Remove the Dumper Spring.
3. Remove the 2 screws ①.
4. Unlock the support ② and remove the Loading Motor Ass'y.
5. Unlock the 2 supports ③ and remove the Deck PCB (BOT).

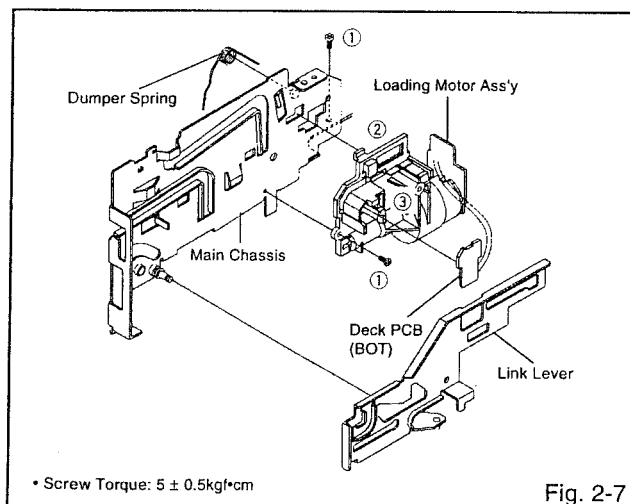


Fig. 2-7

2-8: TENSION ASS'Y (Refer to Fig. 2-8-A)

1. Move the Inclined S Ass'y to the back side.
2. Remove the Tension Spring.
3. Unlock the support ① and remove the Tension Arm Ass'y.
4. Remove the Tension Adjust.
5. Unlock the 2 supports ② and remove the Tension Band Ass'y.
6. Unlock the support ③ and remove the Tension Holder.
7. Remove the SS Brake Spring.
8. Remove the SS Arm Brake.

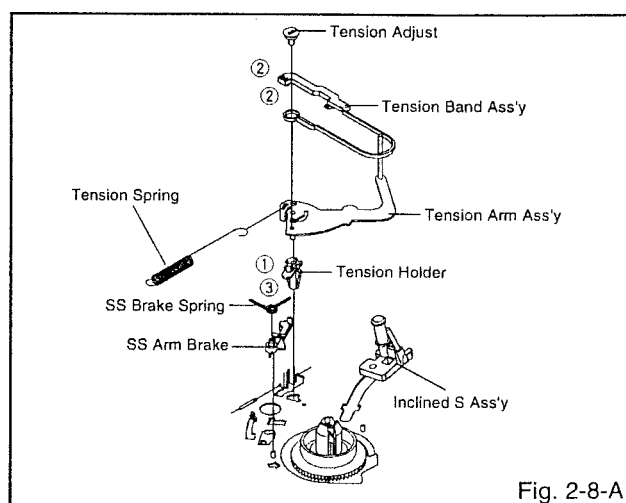


Fig. 2-8-A

NOTE

When you install the Tension Adjust, install as shown in Fig. 2-8-B. (Refer to Fig. 2-8-B)

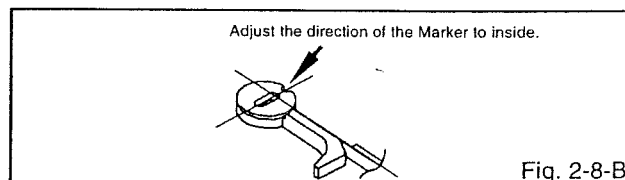


Fig. 2-8-B

2-9: T BRAKE ASS'Y (Refer to Fig. 2-9)

1. Remove the T Brake Spring.
2. Remove the T Brake Ass'y.

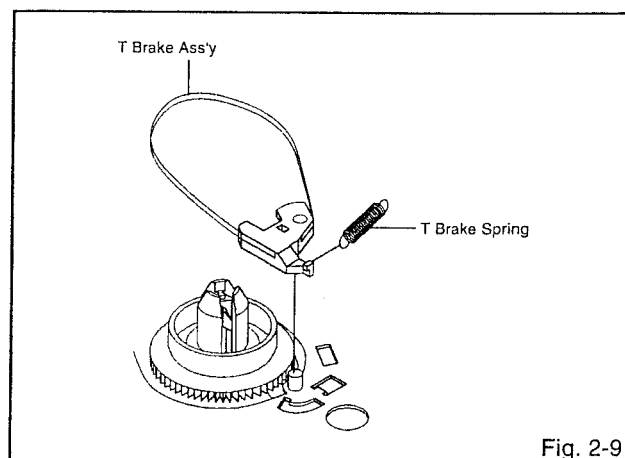


Fig. 2-9

DISASSEMBLY INSTRUCTIONS

2-10: S REEL/T REEL (Refer to Fig. 2-10)

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.

NOTE

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-10)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and oil it (FL OIL #6115). (If you do not oil, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

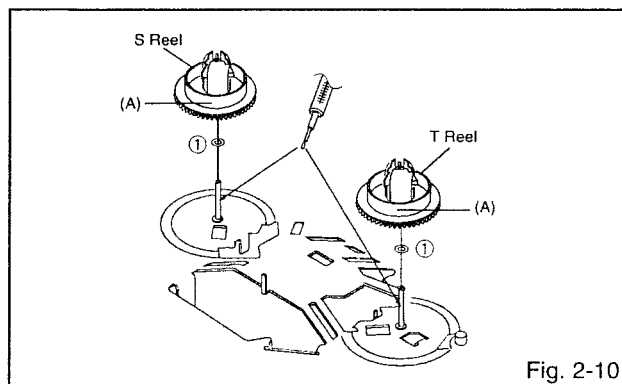


Fig. 2-10

2-11: PINCH ROLLER BLOCK/P5-3 ARM ASS'Y (Refer to Fig. 2-11-A)

1. Remove the P5 Spring.
2. Remove the screw ①.
3. Unlock the 2 supports ② and remove the Cassette Opener.
4. Remove the Pinch Roller Block, Pinch Roller Arm Spring, Pinch Roller Lever Ass'y and P5-3 Arm Ass'y.

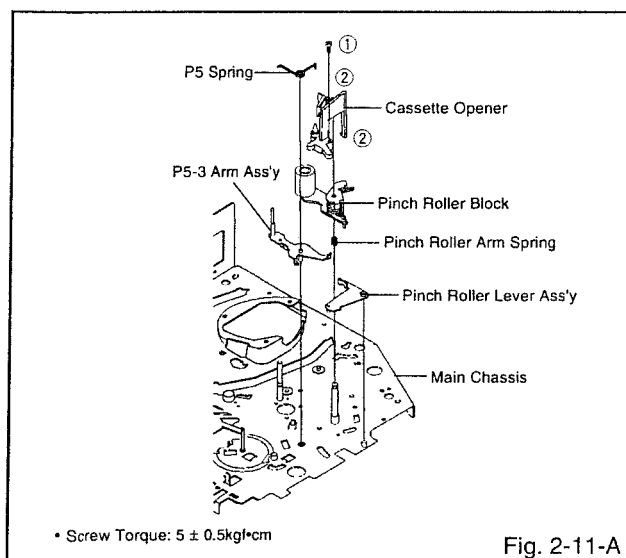


Fig. 2-11-A

NOTE

1. Do not touch the Pinch Roller. (Use gloves.)
2. When you install the Pinch Roller Block, install as shown in the circle of Fig. 2-11-B. **(Refer to Fig. 2-11-B)**

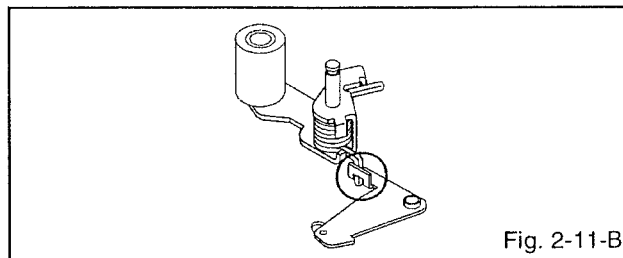


Fig. 2-11-B

2-12: A/C HEAD (Refer to Fig. 2-12-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

NOTE

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-12-B. **(Refer to Fig. 2-12-B)**
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).

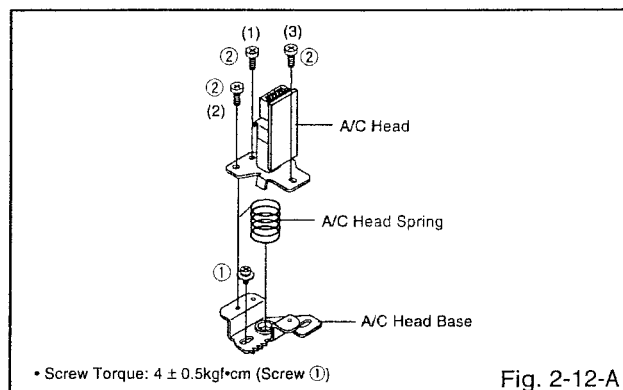


Fig. 2-12-A

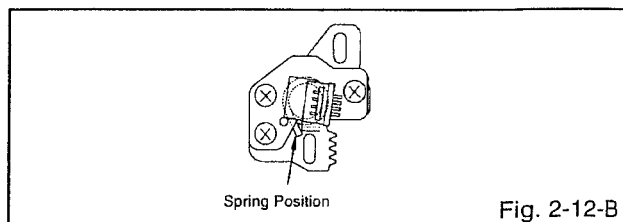


Fig. 2-12-B

2-13: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-13)

1. Remove the screw ①.
2. Remove the FE Head.

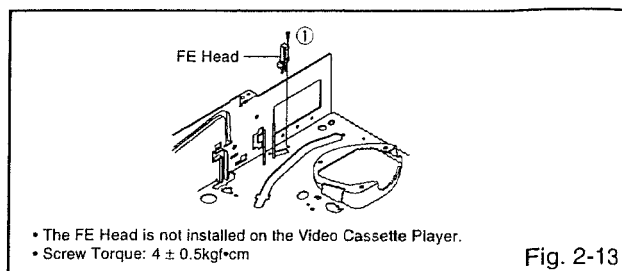


Fig. 2-13

DISASSEMBLY INSTRUCTIONS

2-14: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-14)

1. Unlock the support ① and remove the AHC Ass'y.
2. Remove the 3 screws ②.
3. Remove the Cylinder Unit Ass'y.

NOTE

When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.

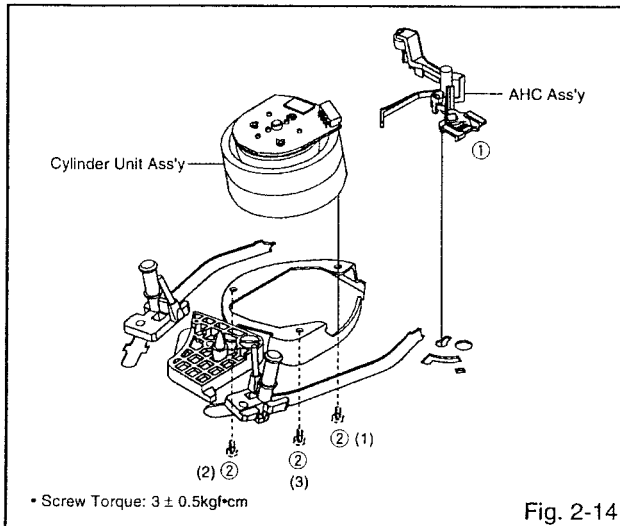


Fig. 2-14

2-15: CAPSTAN DD UNIT (Refer to Fig. 2-15)

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.

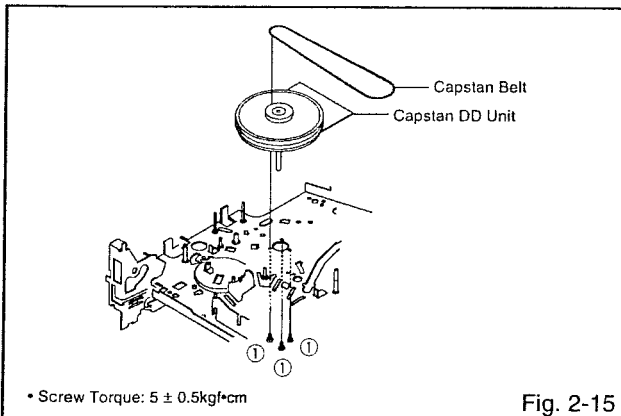


Fig. 2-15

2-16: MIDDLE GEAR/MAIN CAM (Refer to Fig. 2-16-A)

1. Remove the Polyslider Washer ①, then remove the Middle Gear.
2. Remove the E-Ring, then remove the Main Cam, P5 Cam and Pinch Roller Cam.
3. Remove the Polyslider Washer ②, then remove the Joint Gear.

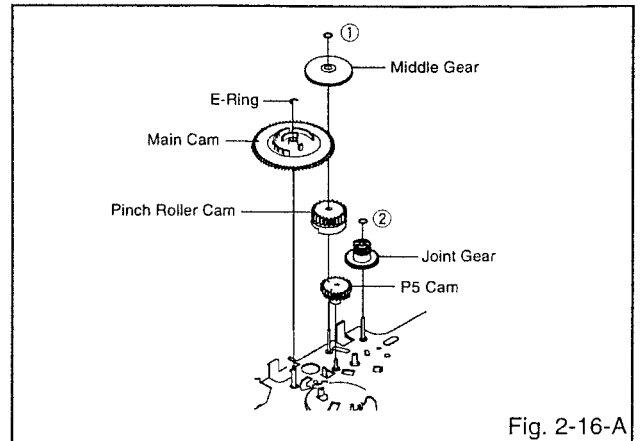


Fig. 2-16-A

NOTE

When you install the Pinch Roller Cam, P5 Cam and Main Cam, align each marker. (Refer to Fig. 2-16-B)

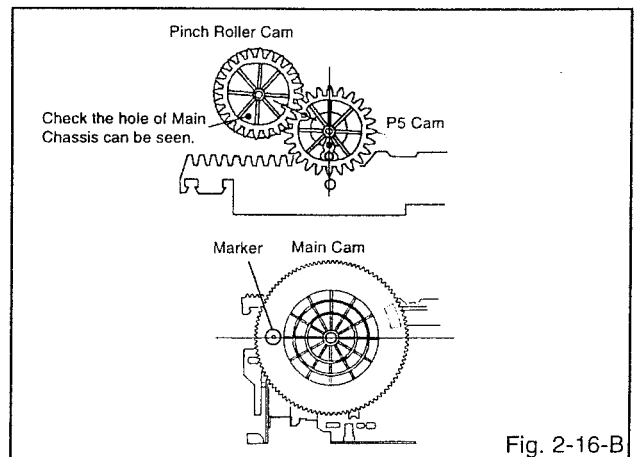


Fig. 2-16-B

2-17: CLUTCH ASS'Y (Refer to Fig. 2-17)

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y, Ring Spring and Coupling Gear.
3. Unlock the 2 supports ② and remove the Clutch Lever.

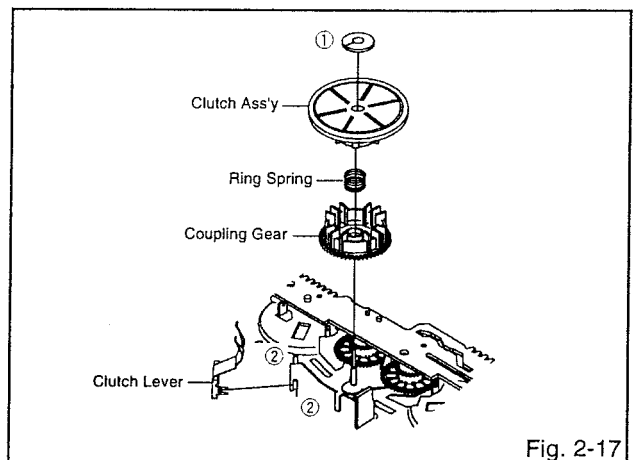
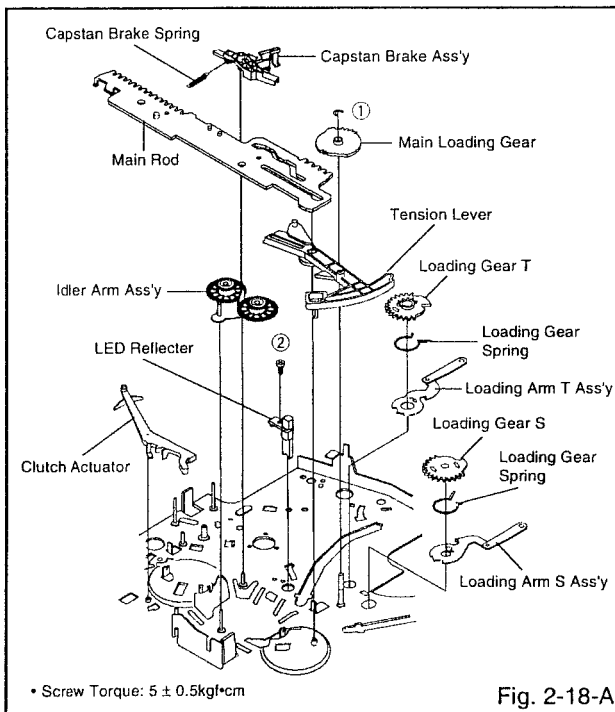


Fig. 2-17

DISASSEMBLY INSTRUCTIONS

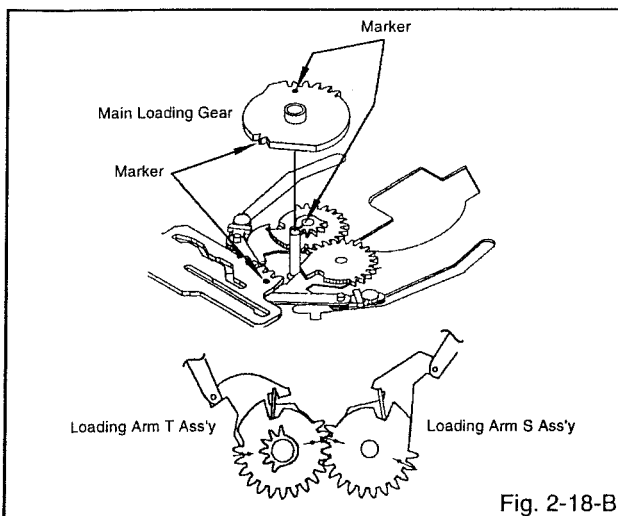
2-18: LOADING GEAR S/T ASS'Y (Refer to Fig. 2-18-A)

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Capstan Brake Spring.
3. Slide the Main Rod and remove the Capstan Brake Ass'y.
4. Remove the Main Rod, Tension Lever, Clutch Actuator, Idler Arm Ass'y.
5. Remove the screw ②.
6. Remove the LED Reflector.
7. Remove the Loading Arm S Ass'y and Loading Arm T Ass'y.
8. Remove the Loading Gear S and Loading Gear T.
9. Remove the Loading Gear Spring.

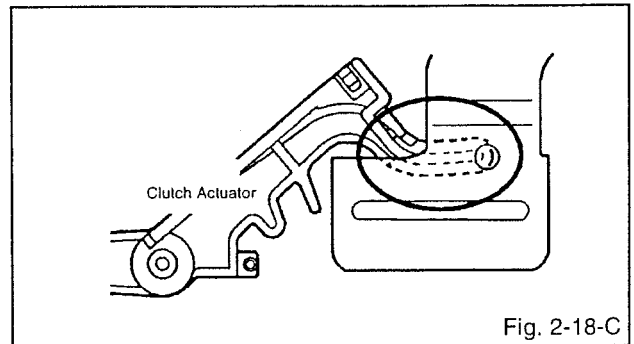


NOTES

1. When you install the Loading Arm S Ass'y, Loading Arm T Ass'y and Main Loading Gear, align each marker. (Refer to Fig. 2-18-B)



2. When you install the Clutch Actuator, install as shown in the circle of Fig. 2-18-C. (Refer to Fig. 2-18-C)

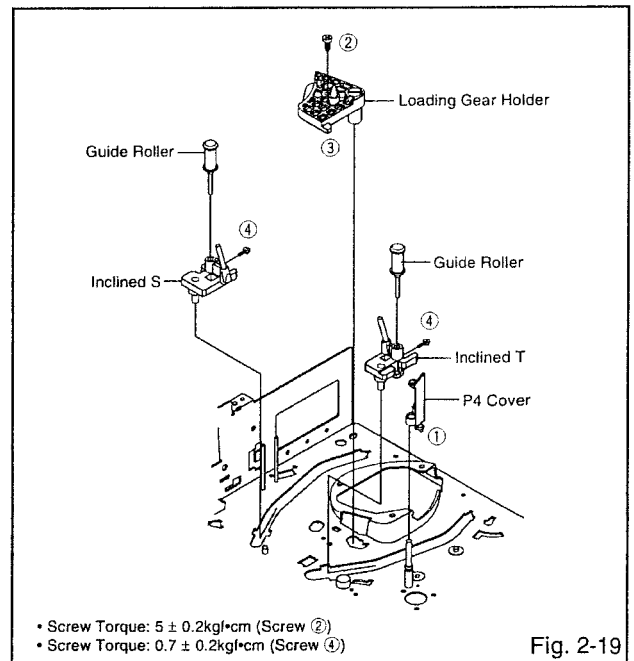


2-19: INCLINED S/T ASS'Y (Refer to Fig. 2-19)

1. Unlock the support ① and remove the P4 Cover.
2. Remove the screw ②.
3. Unlock the support ③ and remove the Loading Gear Holder.
4. Remove the Inclined S.
5. Remove the Inclined T.
6. Remove the 2 screws ④, then remove the Guide Roller.

NOTE

Do not touch the roller of Guide Roller.



KEY TO ABBREVIATIONS

A	A/C	: Audio/Control	H.SW	: Head Switch	
	ACC	: Automatic Color Control	Hz	: Hertz	
	AE	: Audio Erase	I	IC	: Integrated Circuit
	AFC	: Automatic Frequency Control		IF	: Intermediate Frequency
	AFT	: Automatic Fine Tuning		IND	: Indicator
	AFT DET	: Automatic Fine Tuning Detect		INV	: Inverter
	AGC	: Automatic Gain Control	K	KIL	: Killer
	AMP	: Amplifier	L	L	: Left
	ANT	: Antenna		LED	: Light Emitting Diode
	A.PB	: Audio Playback		LIMIT AMP	: Limiter Amplifier
	APC	: Automatic Phase Control		LM, LDM	: Loading Motor
	ASS'Y	: Assembly		LP	: Long Play
	AT	: All Time		L.P.F	: Low Pass Filter
	AUTO	: Automatic		LUMI.	: Luminance
	A/V	: Audio/Video	M	M	: Motor
B	BGP	: Burst Gate Pulse		MAX	: Maximum
	BOT	: Beginning of Tape		MINI	: Minimum
	BPF	: Bandpass Filter		MIX	: Mixer, mixing
	BRAKE SOL	: Brake Solenoid		MM	: Monostable Multivibrator
	BUFF	: Buffer		MOD	: Modulator, Modulation
	B/W	: Black and White		MPX	: Multiplexer, Multiplex
C	C	: Capacitance, Collector		MS SW	: Mecha State Switch
	CASE	: Cassette	N	NC	: Non Connection
	CAP	: Capstan		NR	: Noise Reduction
	CARR	: Carrier	O	OSC	: Oscillator
	CH	: Channel		OPE	: Operation
	CLK	: Clock	P	PB	: Playback
	CLOCK (SY-SE)	: Clock (Syscon to Servo)		PB CTL	: Playback Control
	COMB	: Combination, Comb Filter		PB-C	: Playback-Chrominance
	CONV	: Converter		PB-Y	: Playback-Luminance
	CPM	: Capstan Motor		PCB	: Printed Circuit Board
	CTL	: Control		P. CON	: Power Control
	CYL	: Cylinder		PD	: Phase Detector
	CYL-M	: Cylinder-Motor		PG	: Pulse Generator
	CYL SENS	: Cylinder-Sensor		P-P	: Peak-to Peak
D	DATA (SY-CE)	: Data (Syscon to Servo)	R	R	: Right
	dB	: Decibel		REC	: Recording
	DC	: Direct Current		REC-C	: Recording-Chrominance
	DD Unit	: Direct Drive Motor Unit		REC-Y	: Recording-Luminance
	DEMOD	: Demodulator		REEL BRK	: Reel Brake
	DET	: Detector		REEL S	: Reel Sensor
	DEV	: Deviation		REF	: Reference
E	E	: Emitter		REG	: Regulated, Regulator
	EF	: Emitter Follower		REW	: Rewind
	EMPH	: Emphasis		REV, RVS	: Reverse
	ENC	: Encoder		RF	: Radio Frequency
	ENV	: Envelope		RMC	: Remote Control
	EOT	: End of Tape		RY	: Relay
	EQ	: Equalizer	S	S. CLK	: Serial Clock
	EXT	: External		S. COM	: Sensor Common
F	F	: Fuse		S. DATA	: Serial Data
	FBC	: Feed Back Clamp		SEG	: Segment
	FE	: Full Erase		SEL	: Select, Selector
	FF	: Fast Forward, Flipflop		SENS	: Sensor
	FG	: Frequency Generator		SER	: Search Mode
	FL SW	: Front Loading Switch		SI	: Serial Input
	FM	: Frequency Modulation		SIF	: Sound Intermediate Frequency
	FSC	: Frequency Sub Carrier		SO	: Serial Output
	FWD	: Forward		SOL	: Solenoid
G	GEN	: Generator		SP	: Standard Play
	GND	: Ground		STB	: Serial Strobe
H	H.P.F	: High Pass Filter		SW	: Switch

ERROR CODE LIST

If the error indications are appeared on the FIP, check the abnormal points by using the table below.

Indications	Error contents
Error : 00	Remocon code error
Error : 01	Reel mecha error
Error : 02	Cylinder mecha error
Error : 03	Mecha state error
Error : 04	Capstan mecha error

SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.

Method	Operations
Press both PLAY button and CH UP button on the set for more than 2 seconds.	Initialization of the factory. NOTE: Do not use this for the normal servicing.
While pressing the CH UP key on the set, press the FF key on the set for more than 2 seconds.	PLAY/REC total hours are displayed on the FIP. Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF USING HOURS). Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "NOTE FOR THE REPLACING OF MEMORY IC".
Press the ATR button on the remote control for more than 2 seconds during PLAY.	Adjusting of the Tracking to the center position. Refer to the "MECHANICAL ADJUSTMENT" (GUIDE ROLLER) and "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
While pressing the CH UP button on the set, press the STOP button on the set for more than 2 seconds during PLAY.	Adjust the PG SHIFTER automatically. Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER).
Make the short circuit between the test point of SERVICE and the GND.	The EOT/BOT/Reel sensor do not work at this moment. Refer to the "PREPARATION FOR SERVICING"

KEY TO ABBREVIATIONS

S	SYNC	:	Synchronization
	SYNC SEP	:	Sync Separator, Separation
T	TR	:	Transistor
	TRAC	:	Tracking
	TRICK PB	:	Trick Playback
	TP	:	Test Point
U	UNREG	:	Unregulated
V	V	:	Volt
	VCO	:	Voltage Controlled Oscillator
	VIF	:	Video Intermediate Frequency
	VP	:	Vertical Pulse, Voltage Display
	V.PB	:	Video Playback
	VR	:	Variable Resistor
	V.REC	:	Video Recording
	VSF	:	Visual Search Fast Forward
	VSR	:	Visual Search Rewind
	VSS	:	Voltage Super Source
	V-SYNC	:	Vertical-Synchronization
	VT	:	Voltage Tuning
X	X'TAL	:	Crystal
Y	Y/C	:	Luminance/Chrominance

PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or misuse may cause transformation and aging of rubber parts.

Time Parts Name	500 hours	1,000 hours	1,500 hours	2,000 hours	3,000 hours	Notes
Audio Control Head	■	■	■	■	■	Clean those parts in contact with the tape.
Full Erase Head (Recorder only)	■	■	■	■	■	
Capstan Belt			■	■	●	Clean the rubber, and parts which the rubber touches.
Pinch Roller	■	■	■	■	■ ●	
Capstan DD Unit					●	
Loading Motor					●	
Tension Band					●	
Capstan Shaft	■	■	■	■	■	
Tape Running Guide Post	■	■	■	■	■	Replace when rolling becomes abnormal.
Cylinder Unit	■	■	■	■	●	Clean the Head

■ : Clean
● : Replace

CONFIRMATION OF USING HOURS

PLAY/REC total hours can be checked on the FIP.
Total hours are displayed in 16 system of notation.

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds.
3. Adjust the ADDRESS to "FD" by FF or REW button and read the DATA.
(This DATA becomes the thousands digit and hundreds digit value of the following formula.)
4. Adjust the ADDRESS to "FE" by FF or REW button and read the DATA.
(This DATA becomes the tens digit and ones digit value of the following formula.)
5. After the confirmation of using hours, turn off the power.

17:Ed:04

ADDRESS

DATA

$(16 \times 16 \times 16 \times \text{thousands digit value}) + (16 \times 16 \times \text{hundreds digit value}) + (16 \times \text{tens digit value}) + (\text{ones digit value})$

PREVENTIVE CHECKS AND SERVICE INTERVALS

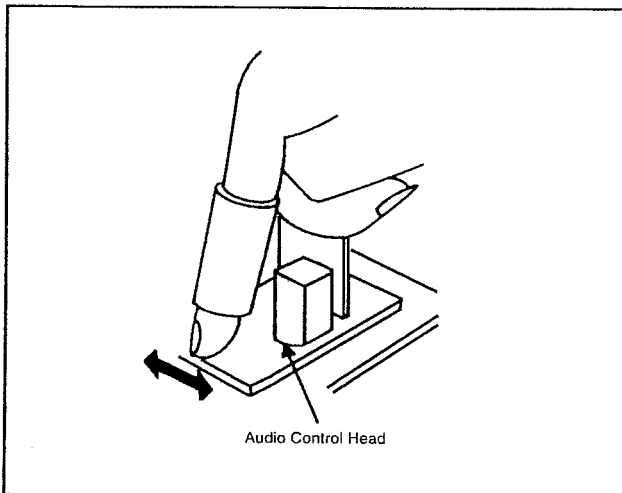
CLEANING

NOTE

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

1. AUDIO CONTROL HEAD

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol and clean the audio control head by wiping it horizontally. Clean the full erase head in the same manner. (Refer to the figure below.)



2. TAPE RUNNING SYSTEM

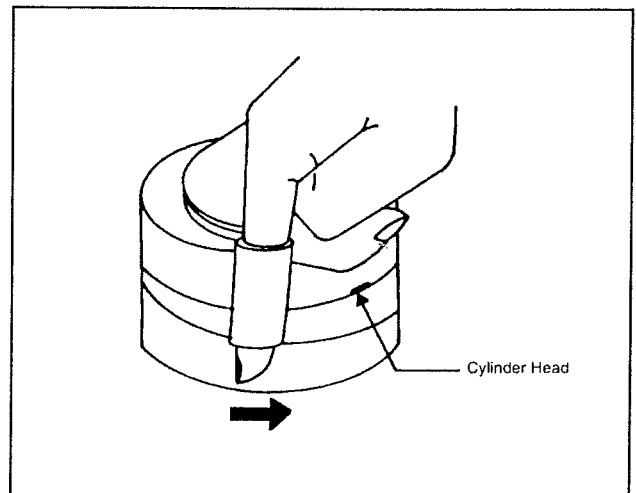
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

3. CYLINDER

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). (Refer to the figure below.)

NOTE

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head. Use the chamois one by one.



NOTE FOR THE REPLACING OF MEMORY IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA	ADDRESS	DATA
C2	00	CC	21	D6	00	E0	76	EA	00	F4	41
C3	00	CD	15	D7	00	E1	5E	EB	5F	F5	00
C4	00	CE	0A	D8	F9	E2	08	EC	09	F6	00
C5	F1	CF	8A	D9	9F	E3	F0	ED	F0	F7	00
C6	44	D0	AA	DA	82	E4	01	EE	0A	F8	00
C7	51	D1	EA	DB	0A	E5	F3	EF	F3	F9	00
C8	00	D2	06	DC	42	E6	00	F0	50	FA	04
C9	51	D3	02	DD	35	E7	00	F1	2F	FB	00
CA	6C	D4	02	DE	A3	E8	00	F2	DF	FC	90
CB	2B	D5	03	DF	56	E9	00	F3	41		

Table 1

1. Turn on the POWER.
2. While pressing the CH UP button on the set, press the FF button on the set for more than 2 seconds. ADDRESS and DATA should appear FIG 1.

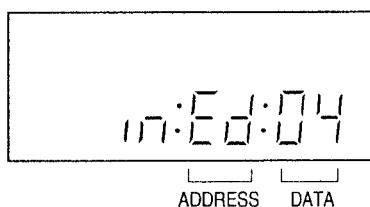

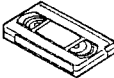
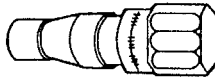
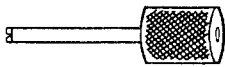
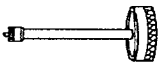
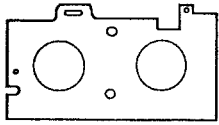
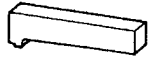
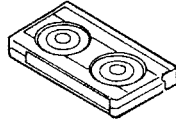

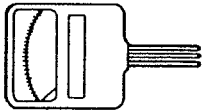


Fig. 1

3. ADDRESS is now selected and should "blink". Using the FF or REW button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using FF or REW button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input. The unit will now have the correct DATA for the new MEMORY IC.

SERVICING FIXTURES AND TOOLS

(For 2 head 1 speed model, 4 head model) VHS Alignment Tape JG001E (VP ₁ S-LI6 ³) JG001F (VP ₁ S-CO1 ³) JG001R (VP ₁ S-LI6 ³ H) JG001U (VP ₁ S-X6 ³) 	(For 2 head 2 speed model) VHS Alignment Tape JG001C (VP ₂ S-LI6 ³) JG001D (VP ₂ S-CO1 ³) JG001V (VP ₂ S-X6 ³) 	JG002B Adapter JG002E Dial Torque Gauge (10~90gf•cm) JG002F (60~600gf•cm) 	JG005 Post Adjustment Screwdriver Part No. SV-TG0-030-000 <small>(small)</small> 
JG153 X Value Adjustment Screwdriver 	JG022 Master Plane 	JG024A Reel Disk Height Adjustment Jig 	JG100A Torque Tape (VHT-063) 
JG154 Cable 	Tentelometer 		

Part No.	Remarks
JG001E	Monoscope, 6KHz (For 2 head 1 speed model, 4 head model)
JG001F	Color Bar, 1KHz (For 2 head 1 speed model, 4 head model)
JG001R	Hi-Fi Audio (For Hi-Fi model)
JG001U	X Value Adjustment (For 2 head 1 speed model, 4 head model)
JG001C	Monoscope, 6KHz (For 2 head 2 speed model)
JG001D	Color Bar, 1KHz (For 2 head 2 speed model)
JG001V	X Value Adjustment (For 2 head 2 speed model)
JG002B	VSR Torque, Brake Torque (S Reel/T Reel Ass'y)
JG002E	Brake Torque (T Reel Ass'y)
JG002F	VSR Torque, Brake Torque (S Reel)
JG005	Guide Roller Adjustment
JG153	X Value Adjustment
JG022/JG024A	Reel Disk Height Adjustment
JG100A	Playback Torque, Back Tension Torque During Playback
JG154	Used to connect the test point of SERVICE and GROUND

PREPARATION FOR SERVICING

How to use the Servicing Fixture

- Short circuit between TP1001 and TP1002 with the cable JG154.
(Refer to ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE)
The EOT, BOT and Reel Sensor do not work at this moment.
At that time, the STOP/EJECT button is available to insert and eject the Cassette Tape.

MECHANICAL ADJUSTMENTS

1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)
- When you activate the deck without the Cassette Holder, short circuit between TP1001 and TP1002. (Refer to **ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE**) In this condition the BOT/EOT/Reel Sensor will not function.

1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane (JG022) and reel disk height adjustment jig (JG024A) on the mechanism framework, taking care not to scratch the drum, as shown in Fig. 1-1-A.
3. Confirm that "A" of the reel disk is lower than "B" of the reel disk height adjustment jig (JG024A), and is higher than "C". If it is not enough height, adjust to $10(+0.2, -0)$ mm with the height adjustment washer.
4. Adjust the other reel in the same way.

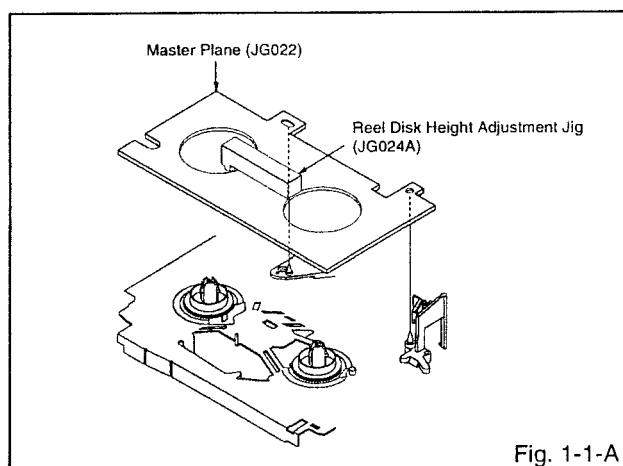


Fig. 1-1-A

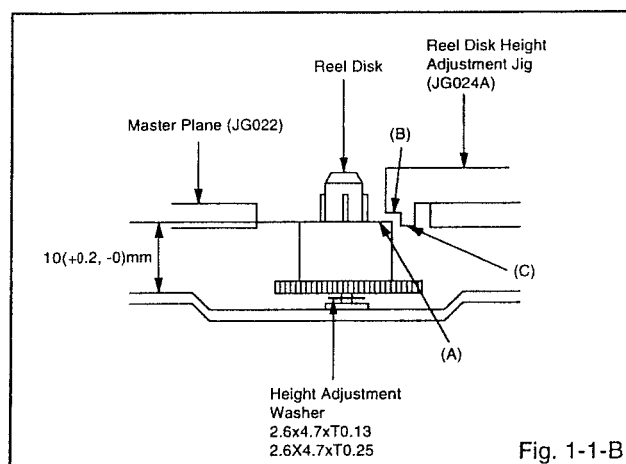


Fig. 1-1-B

1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the Tension Adjust until the edge of the Tension Arm is positioning within 0.5mm range from the standard line center of Main Chassis. After this adjustment, confirm that the cut position is located in "A" area as shown in Fig. 1-2-B. If it is located in "B" area, adjust again.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

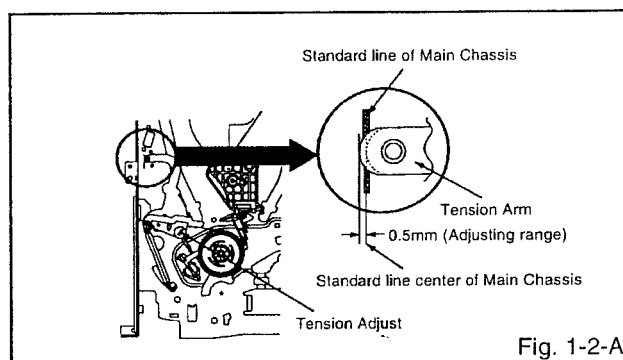


Fig. 1-2-A

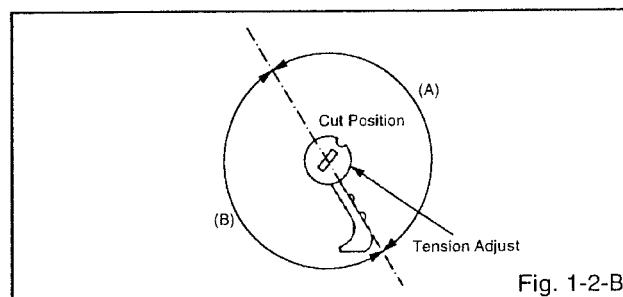


Fig. 1-2-B

1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (E-180) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer as shown in Fig. 1-3. Confirm that the meter indicates 20 ± 2 gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE (JG100A)

1. After confirmation and adjustment of Tension Post position (Refer to item 1-2), load the cassette type torque tape (JG100A) and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 60~110gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

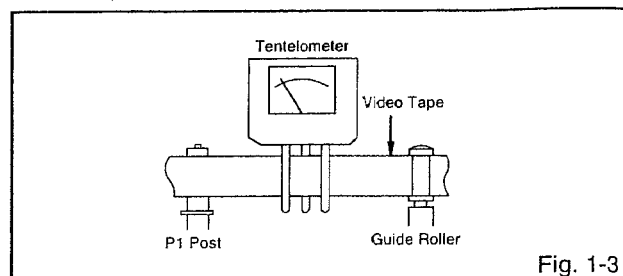


Fig. 1-3

MECHANICAL ADJUSTMENTS

1-4: CONFIRMATION OF VSR TORQUE

1. Operate within 4~5 seconds after the reel disk begins to turn.
2. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Set to the Rewind mode. (Refer to Fig.1-4)
3. Then, confirm that it indicates 120~180gf•cm.

NOTE

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

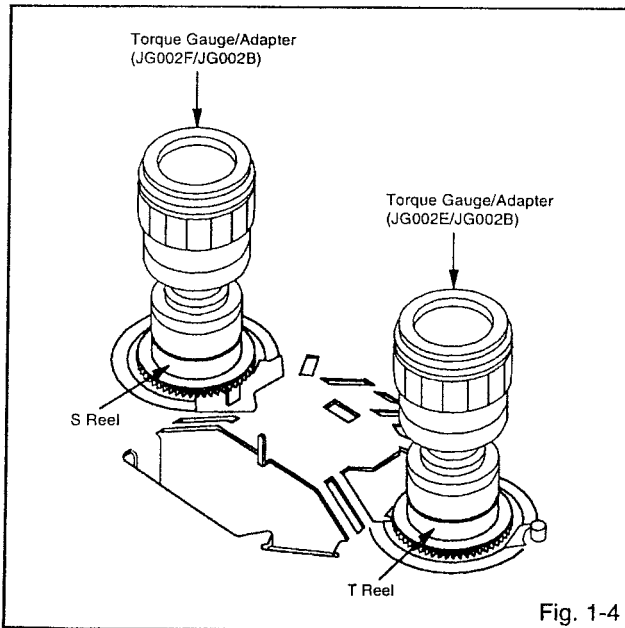
1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) (Refer to Fig. 1-4)

1. Set to the STOP mode.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge (JG002F) and Adapter (JG002B) on the S Reel. Turn the Torque Gauge (JG002F) clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) (Refer to Fig. 1-4)

1. Set to the STOP mode.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge (JG002E) and Adapter (JG002B) on the T reel. Turn the Torque Gauge (JG002E) counterclockwise.
4. Then, confirm that it indicates 45~70gf•cm.



NOTE

If the torque is out of the range, replace the following parts.

Check item	Replacement Part
1-4	Idler Ass'y/Clutch Ass'y
1-5	T Brake Spring/Tension Spring

2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to SERVICING FIXTURE AND TOOLS)
2. Connect CH-1 of the oscilloscope to TP4002 (Envelope) and CH-2 to TP4001 (SW Pulse).
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. (Refer to Fig. 2-1-A)
5. When observing the envelope, adjust the Adjusting Driver (JG005) slightly until the envelope will be flat. Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in Fig. 2-1-B, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.

(Refer to the ELECTRICAL ADJUSTMENTS)

NOTE

After adjustment, confirm and adjust A/C head. (Refer to item 2-2)

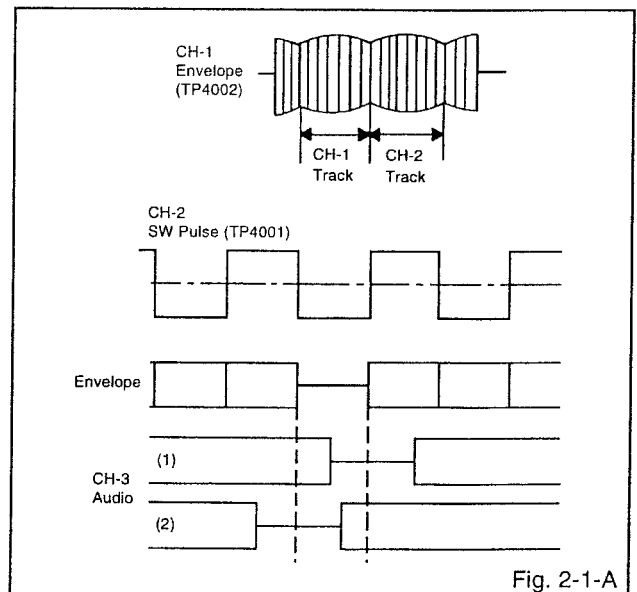


Fig. 2-1-A

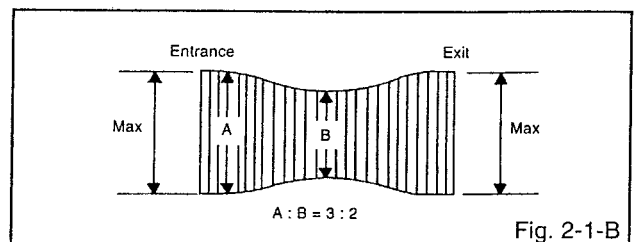


Fig. 2-1-B

MECHANICAL ADJUSTMENTS

2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape (JG001C or JG001E). (Refer to **SERVICING FIXTURE AND TOOLS**)
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Post as shown in **Fig. 2-2-A**.
 - a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
 - b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
 - c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

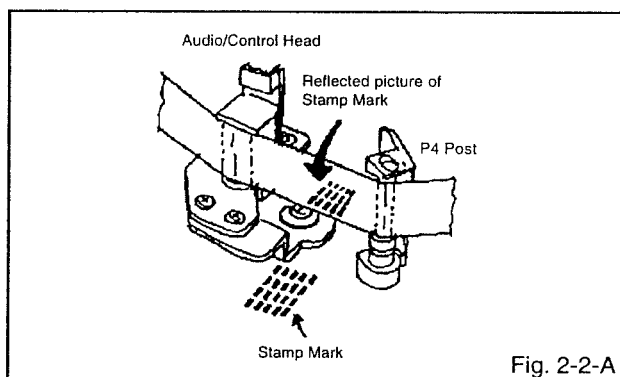


Fig. 2-2-A

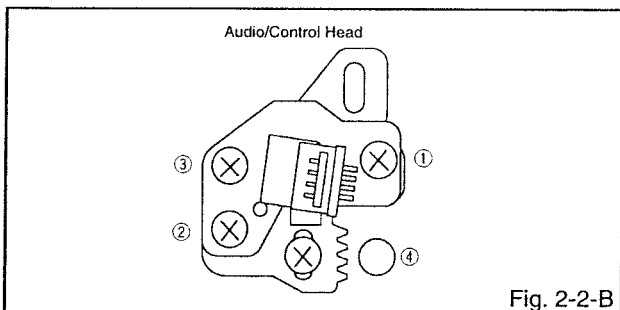


Fig. 2-2-B

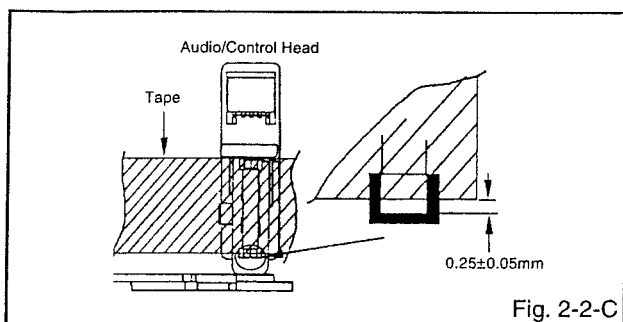


Fig. 2-2-C

2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

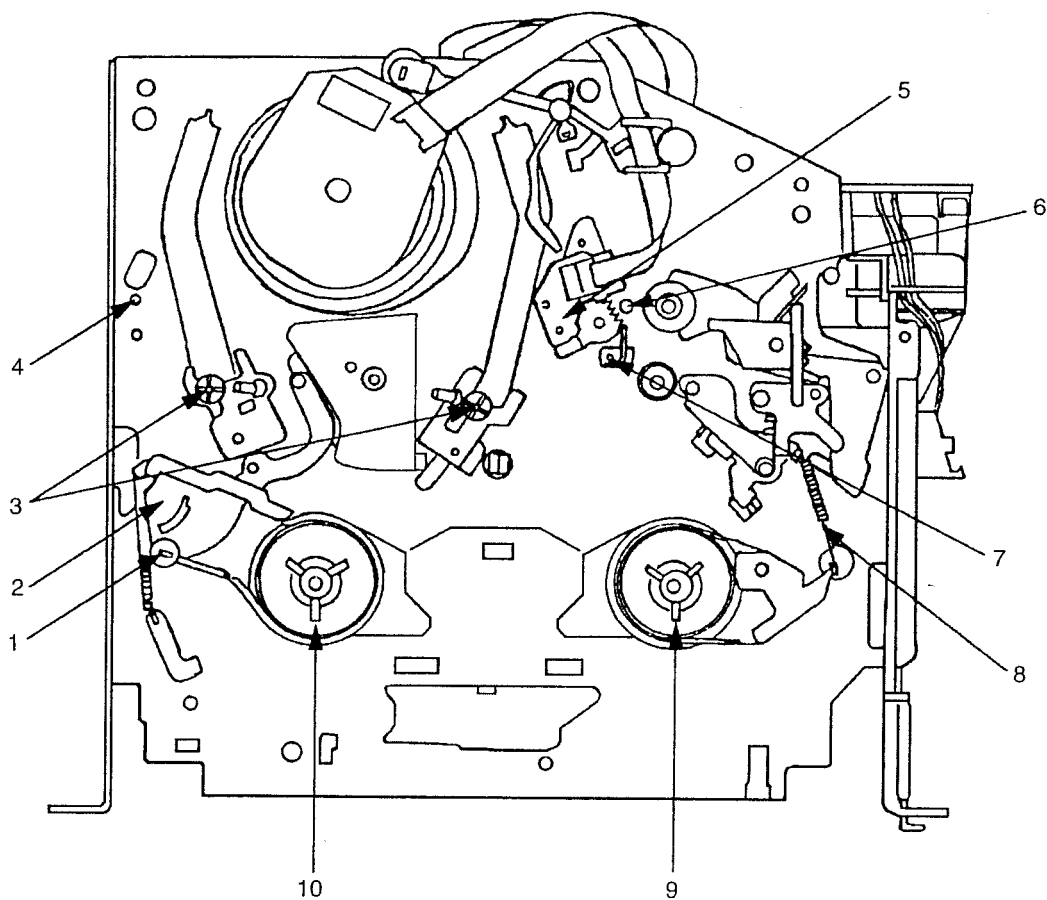
1. Confirm and adjust the height of the Reel Disk. (Refer to item 1-1)
2. Confirm and adjust the position of the Tension Post. (Refer to item 1-2)
3. Adjust the Guide Roller. (Refer to item 2-1)
4. Confirm and adjust the Audio/Control Head. (Refer to item 2-2)
5. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape (JG001U or JG001V). (Refer to **SERVICING FIXTURE AND TOOLS**)
7. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver (JG153) to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-1-A**.

2-4: CONFIRM HI-FI AUDIO (Hi-Fi model only)

1. Connect CH-1 of the oscilloscope to **TP4002**, CH-2 to **TP4001** and CH-3 to the **Hi-Fi Audio Out Jack**.
2. Playback the VHS Alignment Tape (JG001R). (Refer to **SERVICING FIXTURE AND TOOLS**)
3. Press and hold the Tracking-Auto button on the remote control for more than 2 seconds to set tracking to center.
4. Press the Tracking Up button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
5. Press the Tracking Down button and count number of steps which the audio output is changed from Hi-Fi (10KHz) to MONO (6KHz).
6. Confirm that the difference between these counted steps number in the above items are within 2 steps. If the difference are more than 3 steps, do Tape Running Adjustment again. (Refer to item 2-3)

MECHANICAL ADJUSTMENTS

3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE



- 1. Tension Adjust
- 2. Tension Arm
- 3. Guide Roller
- 4. P1 Post
- 5. Audio/Control Head

- 6. X value adjustment driver hole
- 7. P4 Post
- 8. T Brake Spring
- 9. T Reel
- 10. S Reel

ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

1. BASIC ADJUSTMENT

CAUTION

When replacing IC's or transistors, use only specified silicon grease (YG6260M).
(To prevent the damage to IC's and transistors.)

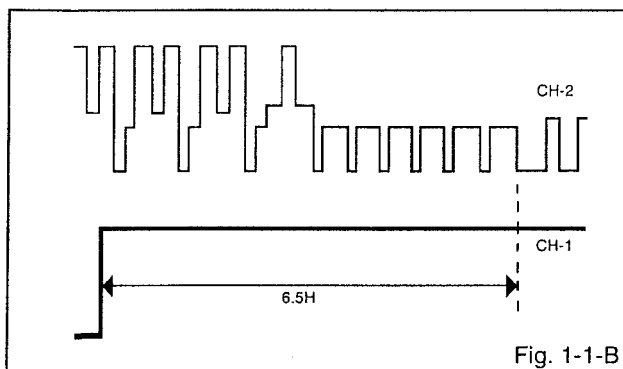
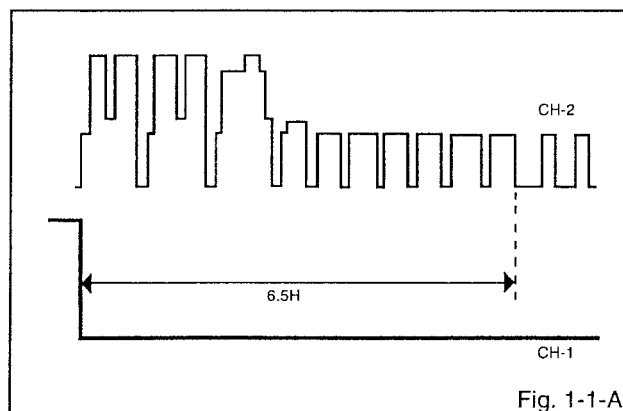
1-1: PG SHIFTER

CONDITIONS

MODE-PLAYBACK
Input Signal-Alignment Tape (JG001E)

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP4001** and CH-2 to **pin 19 of J4501**.
2. Playback the alignment tape. (JG001E)
3. Press and hold the Tracking-Auto button on the remote control more than 2 seconds to set tracking to center.
4. Press both CH UP button and STOP button on the set for more than 2 seconds. If the indicator ATR disappears, the adjustment is finished. (Refer to Fig. 1-1-A, B)



1-2: SEPARATION

CONDITIONS

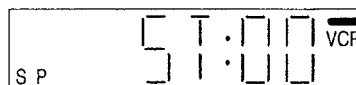
MODE-STOP
AUDIO OUTPUT SW: STEREO POSITION
Input Signal-RF Signal

INSTRUCTIONS

1. Receive the audio signal (L ch: No Signal, R ch: 1KHz).
2. Connect the AC voltmeter to **AUDIO OUT (L ch)**.
3. Press both CH UP button and STOP button on the set for more than 3 seconds.
The fluorescent display on the set displays as below.



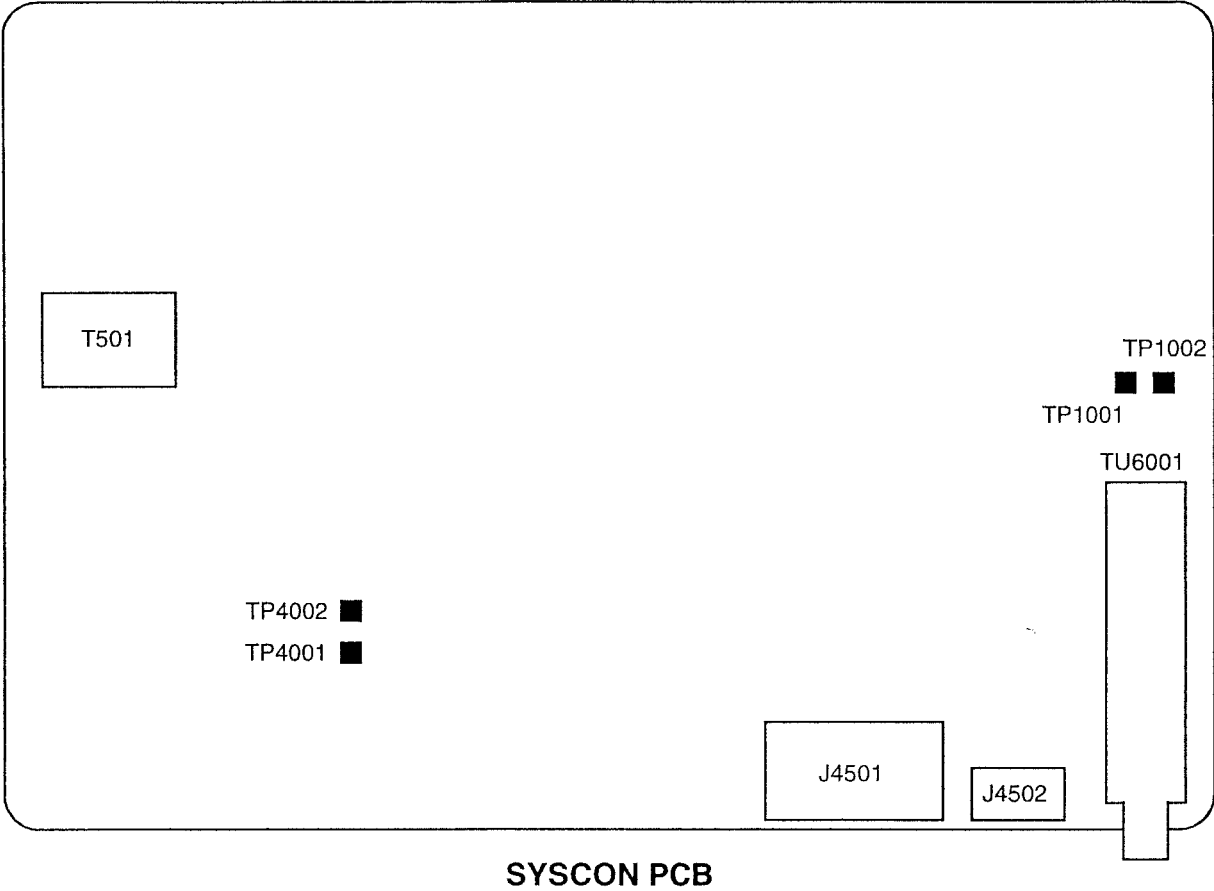
4. Press the F.FWD or REW button on the remote control.
The fluorescent display on the set displays as below.



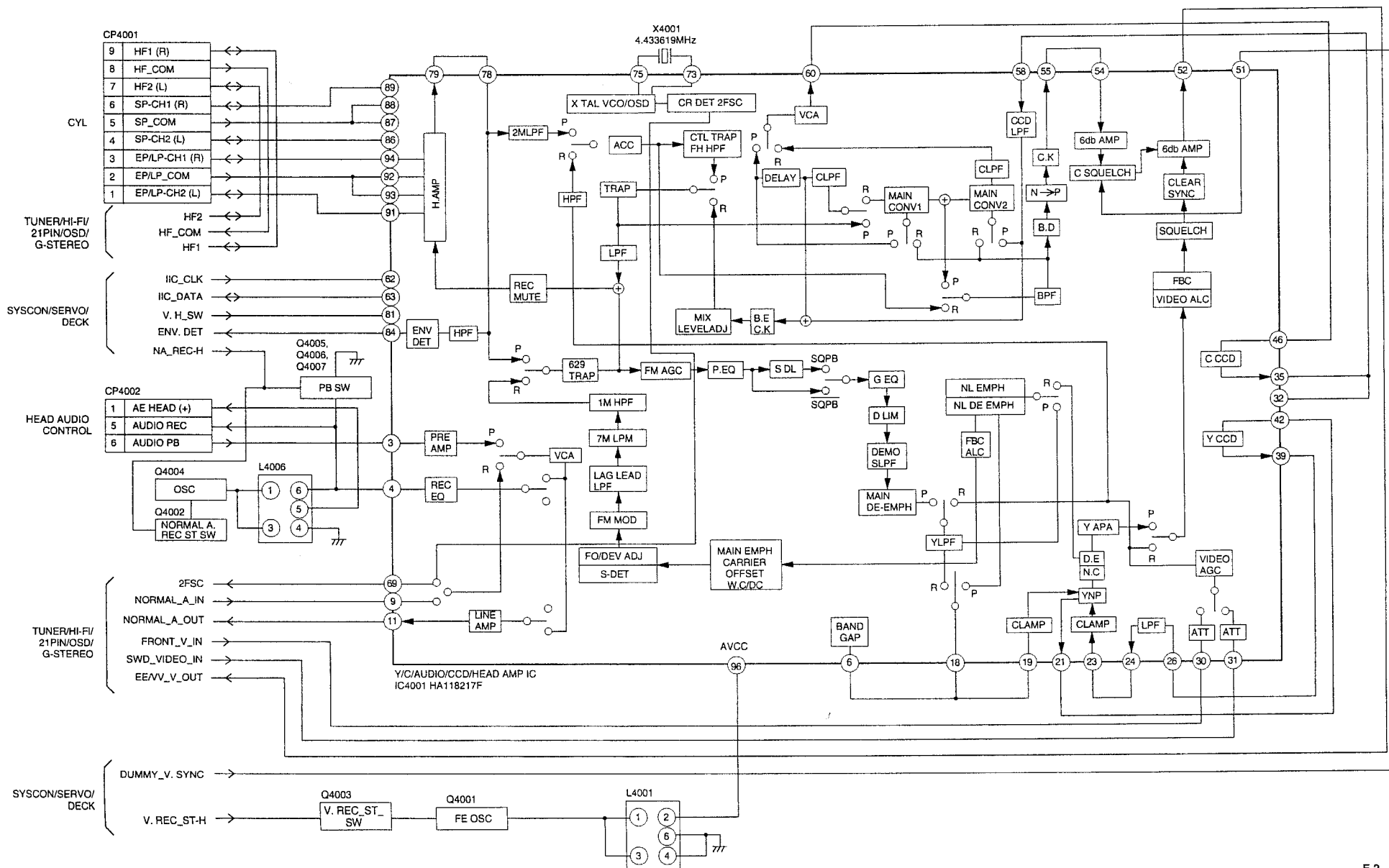
5. Adjust the F.FWD and REW button on the remote control until output signal is minimum. (more than 25dB)
6. Press both CH UP button and STOP button of the set together to complete the adjustment.
7. Receive the audio signal (L ch: 1KHz, R ch: No Signal).
8. Connect the AC voltmeter to **AUDIO OUT (R ch)**.
9. Repeat steps 3 ~ 6.

ELECTRICAL ADJUSTMENTS

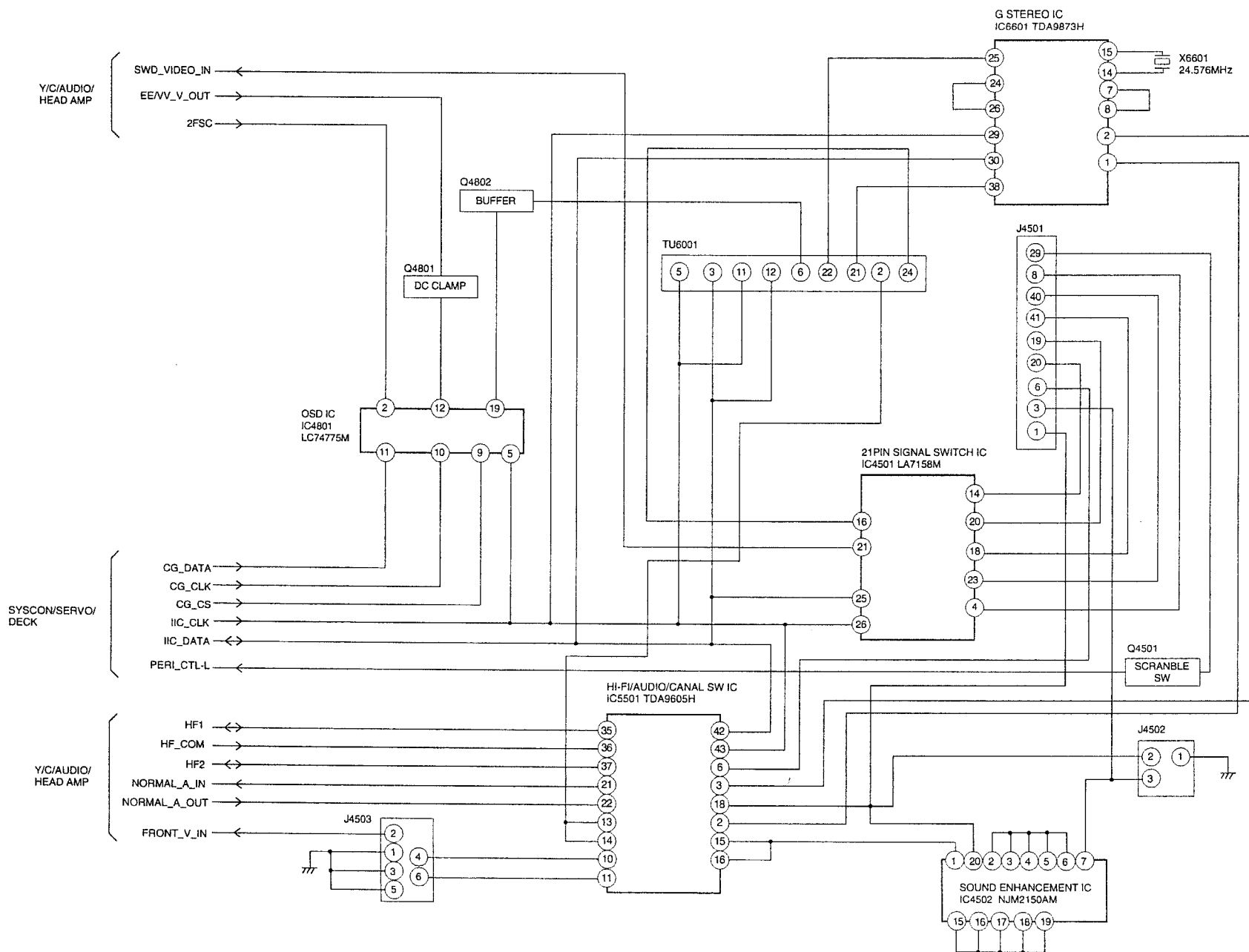
2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE



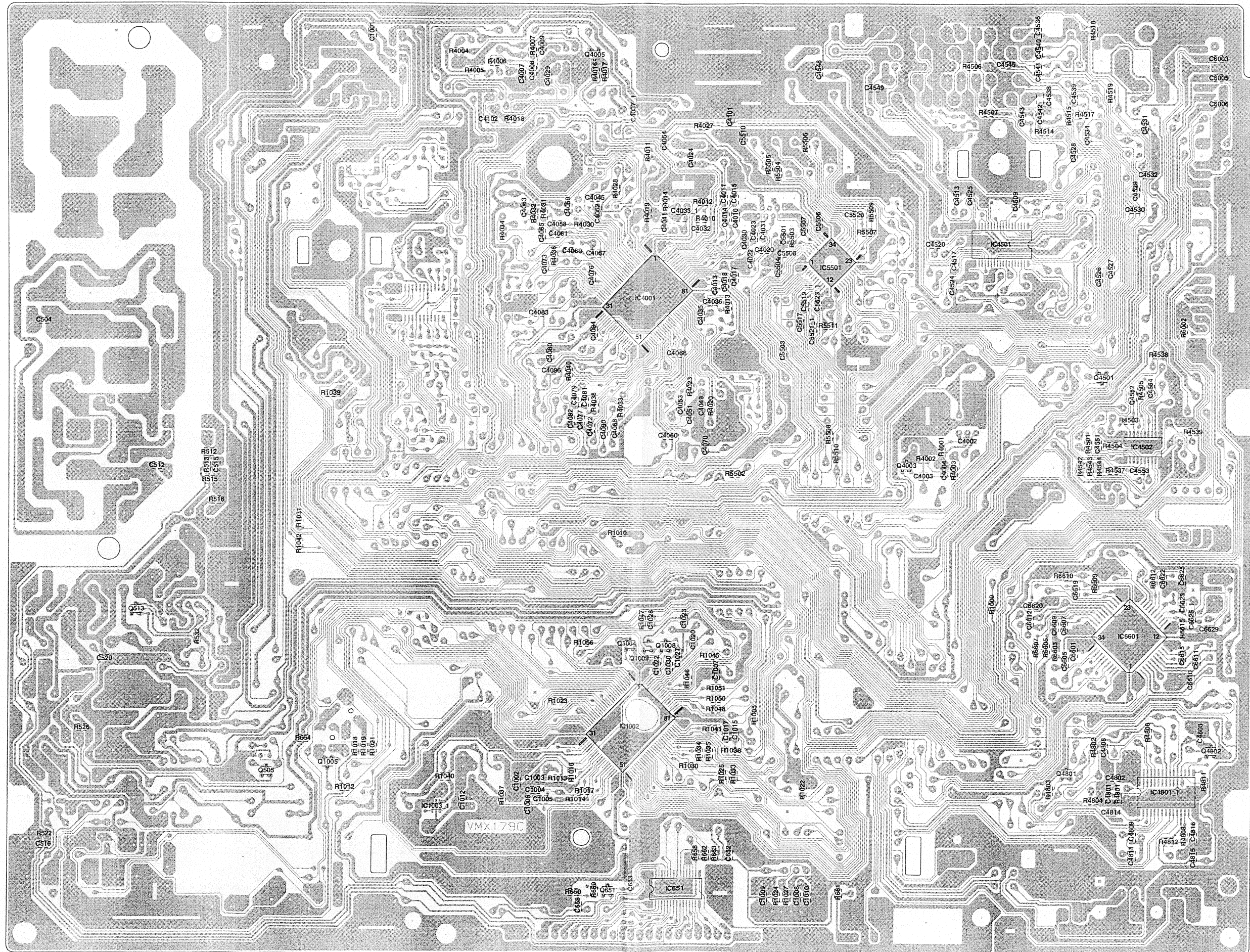
Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM



TUNER/HI-FI/21PIN/OSD/G-STEREO BLOCK DIAGRAM

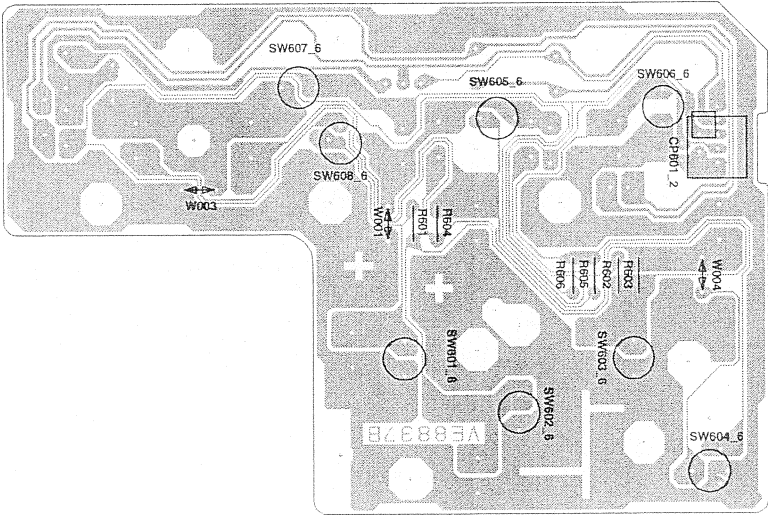


PRINTED CIRCUIT BOARDS
SYSCON (CHIP MOUNTED PARTS)
SOLDER SIDE

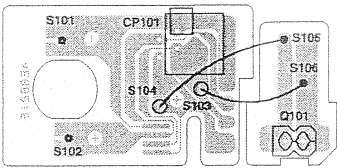


PRINTED CIRCUIT BOARDS

OPERATION
SOLDER SIDE



DECK
SOLDER SIDE



(SYSCON PCB)



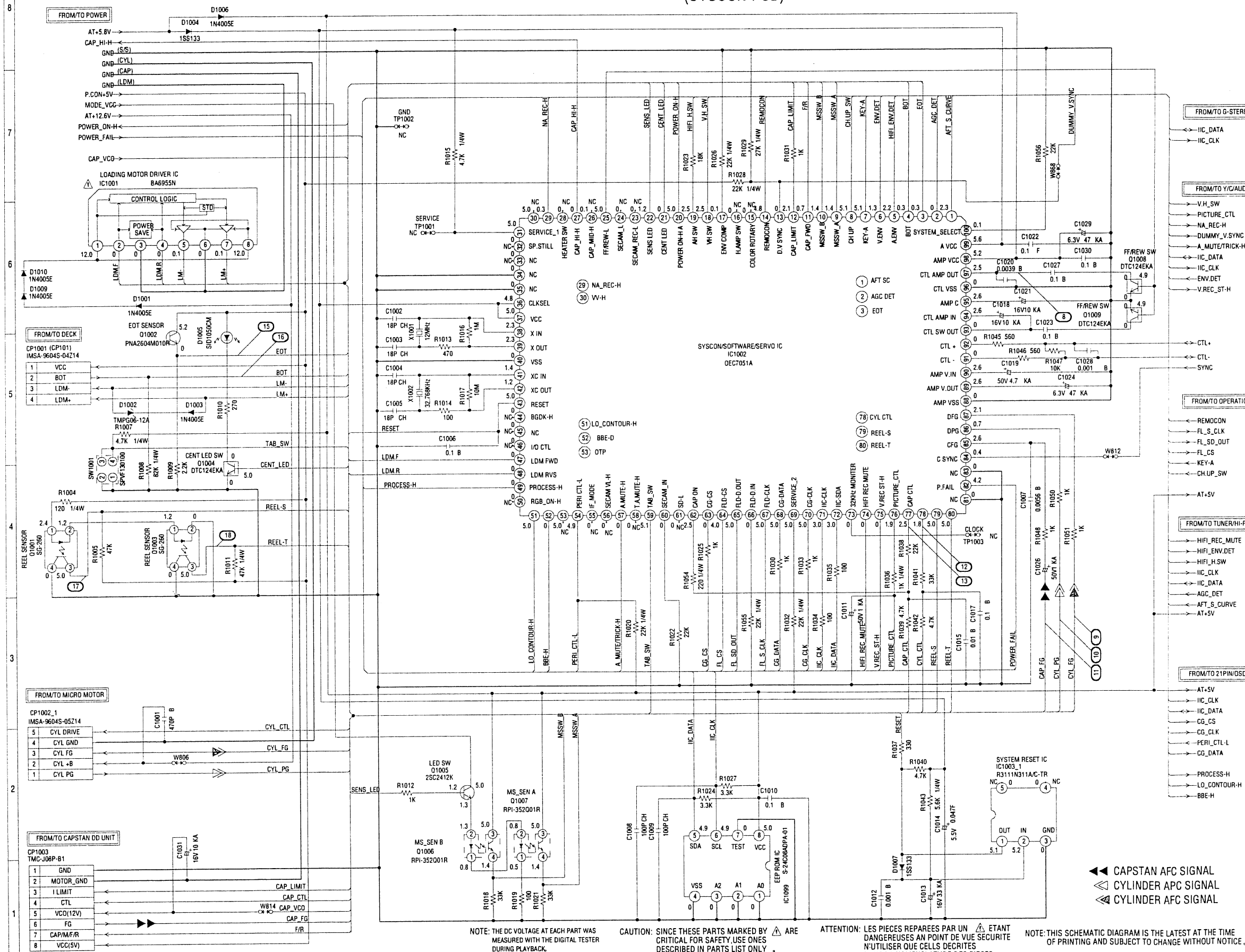
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR

CAUTION: DIGITAL TRANSISTOR

SYSTEM CONTROL/SERVO SCHEMATIC DIAGRAM (SYSCON PCB)



NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

◀ CAPSTAN AFC SIGNAL
◀ CYLINDER APC SIGNAL
◀ CYLINDER AFC SIGNAL

CAUTION: DIGITAL TRANSISTOR



PCB010
VMX179

POWER SCHEMATIC DIAGRAM
(SYSCON PCB)

AC230V 50Hz
CD501
06655816

CP501
B2P3-VH

BLUE FH501
EYF-52BC
EYF-52BC
21801.6
F501
T1.6A_L_250V

250V 0.1 EC001

L503
OR3A433P20

D503
1N4005E
D505
1N4005E
D504
1N4005E
D506
1N4005E

C508
400V 6A WA
C509
1KV100P B

R505
82K 2W

C511
RGF10ME 500V 0.0022 B

D511
RGF10ME 500V 0.0022 B

T501
8130002

D528.1
RGP300L-6801

B502
BL01RN1-A63

C534.1
35V 330 FC

D507
RGP15D

C523
25V 220 ZL

D521
TMP06-16A

C527
16V 330 YK

R531
16V 10 KA 470 1/2W

D527
MTZJ2B

D524
RMPG06D

11.8
12V REG.
Q511
2SC1815V

W818

D529
GP15M

R517
10K 1/4W

R526
47K

18.9
18.0
CAP VCC SW
Q512
2SB1201S

18.0
CAP SW
Q513
2SC2412K

R532
12K

C532
50V 1 KA

R533.1
4.7K 1/4W

P.CON+5V SW
Q506
2SB926

5.7
5.6
11E0504N

R524
1K 1/4W

R525
470 1/4W

P.ON SW
Q505
DTC143EKA

5.0

11.5
10.5
R512
1K

R513
1K

C515
0.0068 B

R515
3.9K ±1%

R516
2.7K ±1%

PHOTO COUPLER
Q504
TLP521(D4-GR-LF2)

VOLTAGE CTL IC
IC501
NJM431L

OUT
GND
IN

4.9
0
2.5

11.5
10.5
R512
1K

R513
1K

C515
0.0068 B

R515
3.9K ±1%

R516
2.7K ±1%

PHOTO COUPLER
Q504
TLP521(D4-GR-LF2)

VOLTAGE CTL IC
IC501
NJM431L

OUT
GND
IN

4.9
0
2.5

TO TUNER/Hi-Fi

+32V
P.CON+5V
AT+12V
GND

TO 21PIN/OSD

VCC+12V
P.CON+5V
GND

TO VCA/AUDIO/HEAD AMP

P.CON+5V
AT+5.8V
GND

TO G-STEREO

P.CON+5V
GND

FROM/TO SYSCON/SERVO

VCC+12V
CAP_VCC
AT+5.8V
P.CON+5V
AT+12.6V
CAP_HI-H
POWER_FAIL
(CYL) GND
(CAP) GND
(LDM) GND
(S/S) GND
POWER_ON-H
MODE_VCC

TO OPERATION

.30V
HEATER_DC
HEATER_DC
GND

CAUTION: SINCE THESE PARTS MARKED BY Δ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÉCES RÉPARÉES PAR UN Δ ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÉCES.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

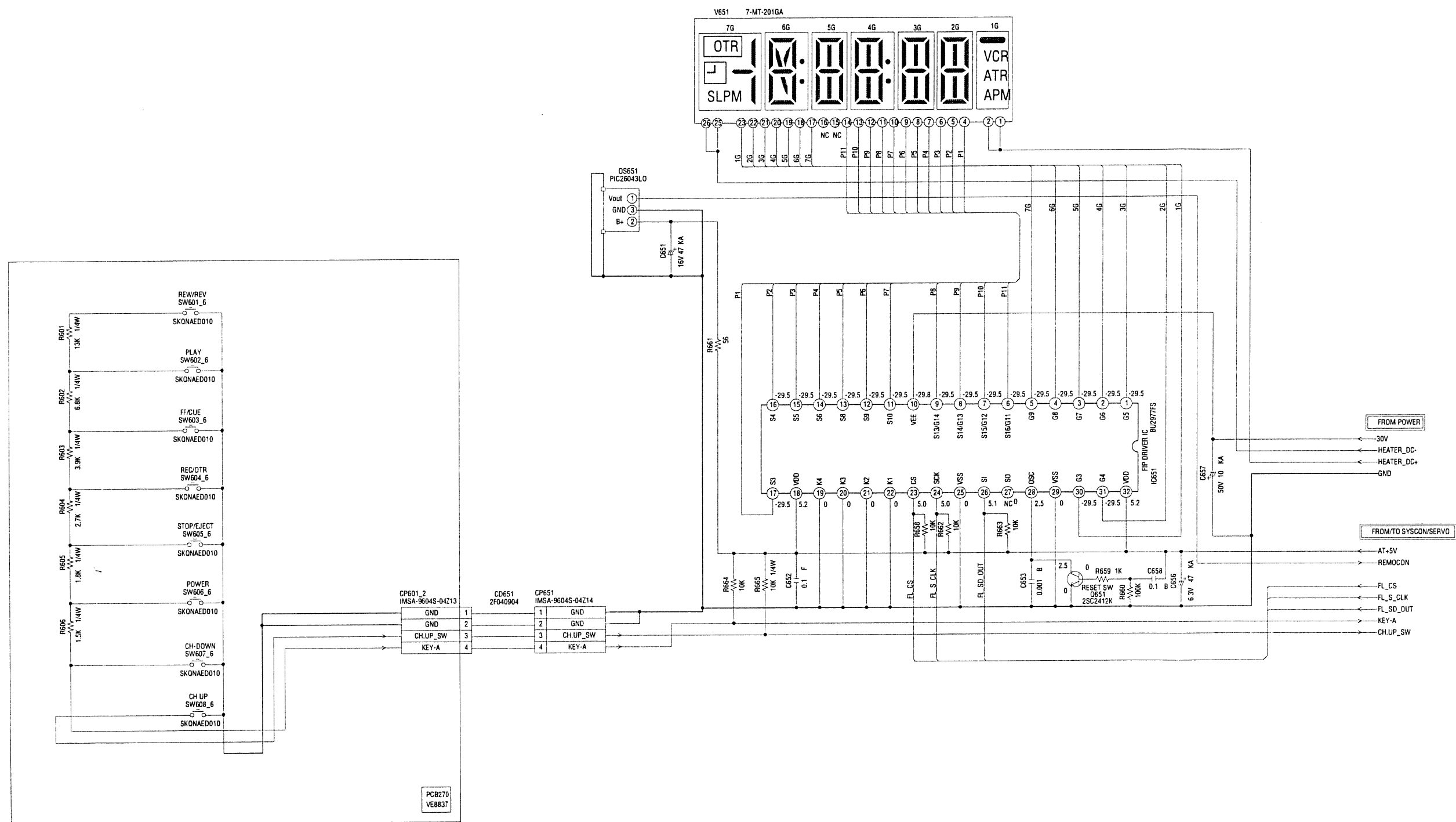
CAUTION: DIGITAL TRANSISTOR

PCB010
VMX179

The diagram shows a square box on the left containing a circuit element with two terminals. An arrow points from this box to a triangle on the right, which also contains a circuit element with two terminals. This represents the transformation of a square box into a triangle.

PCB010
VMX179


OPERATION SCHEMATIC DIAGRAM (SYSCON PCB)



PCB010
VMX179

(SYSCON PCB)



ATTENTION: LES PIÈCES RÉPARÉES PAR UN  ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

PCB010
VMX179

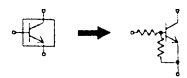
21PIN/OSD SCHEMATIC DIAGRAM (SYSCON PCB)

- ▷ TUNER VIDEO SIGNAL
- ▷ RECORD LUMINANCE SIGNAL
- ▷ RECORD COLOR SIGNAL
- ▷ PLAYBACK LUMINANCE SIGNAL
- ▷ PLAYBACK COLOR SIGNAL
- ▷ AUDIO SIGNAL(REC)
- ▷ AUDIO SIGNAL(PB)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

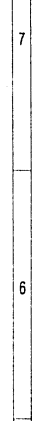
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

CAUTION: DIGITAL TRANSISTOR



PCB010
VMX179

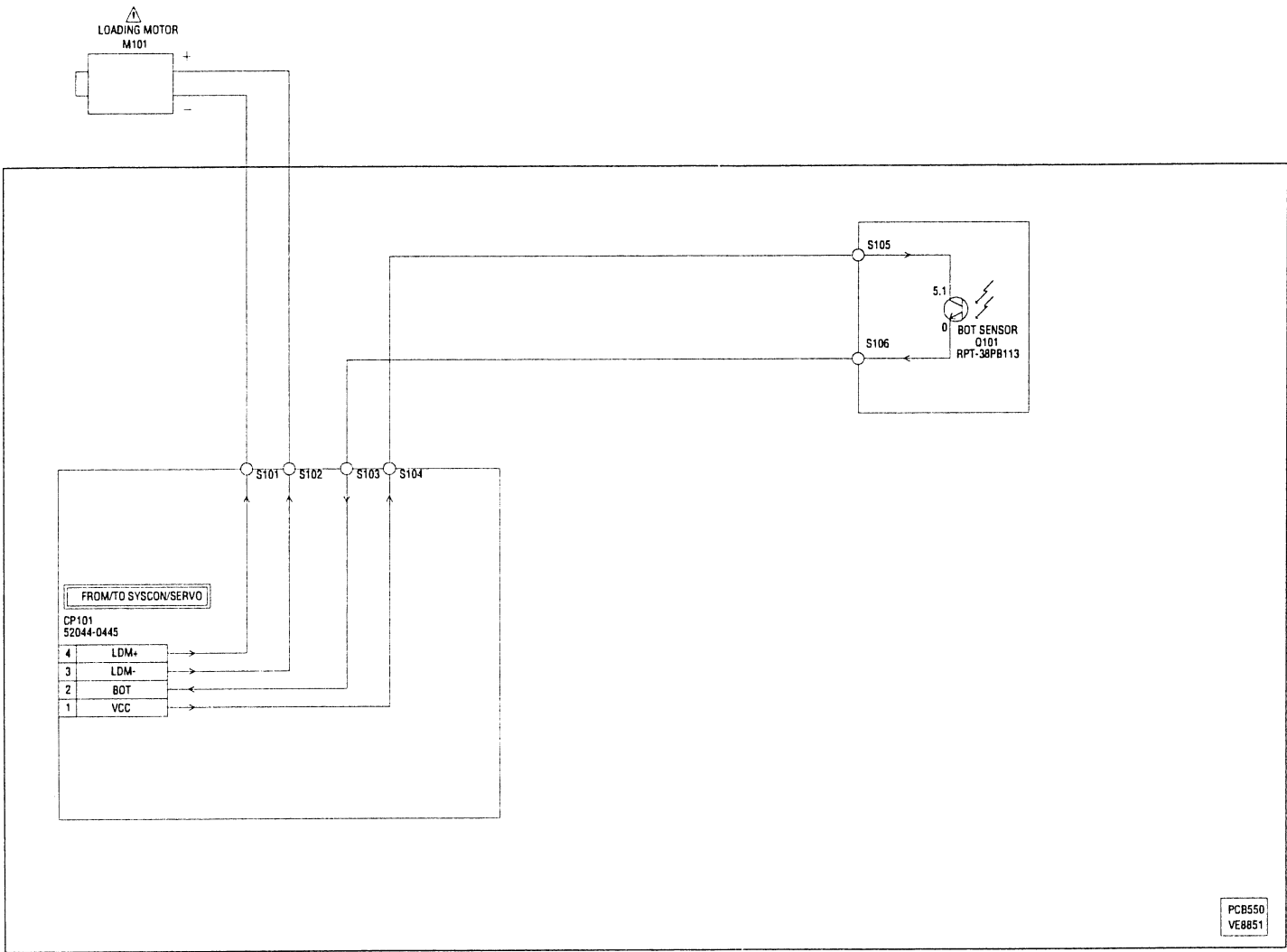
	8
	7
	6
	5
	4
	3
	2
	1



5	4
---	---

3 2

DECK SCHEMATIC DIAGRAM (DECK PCB)



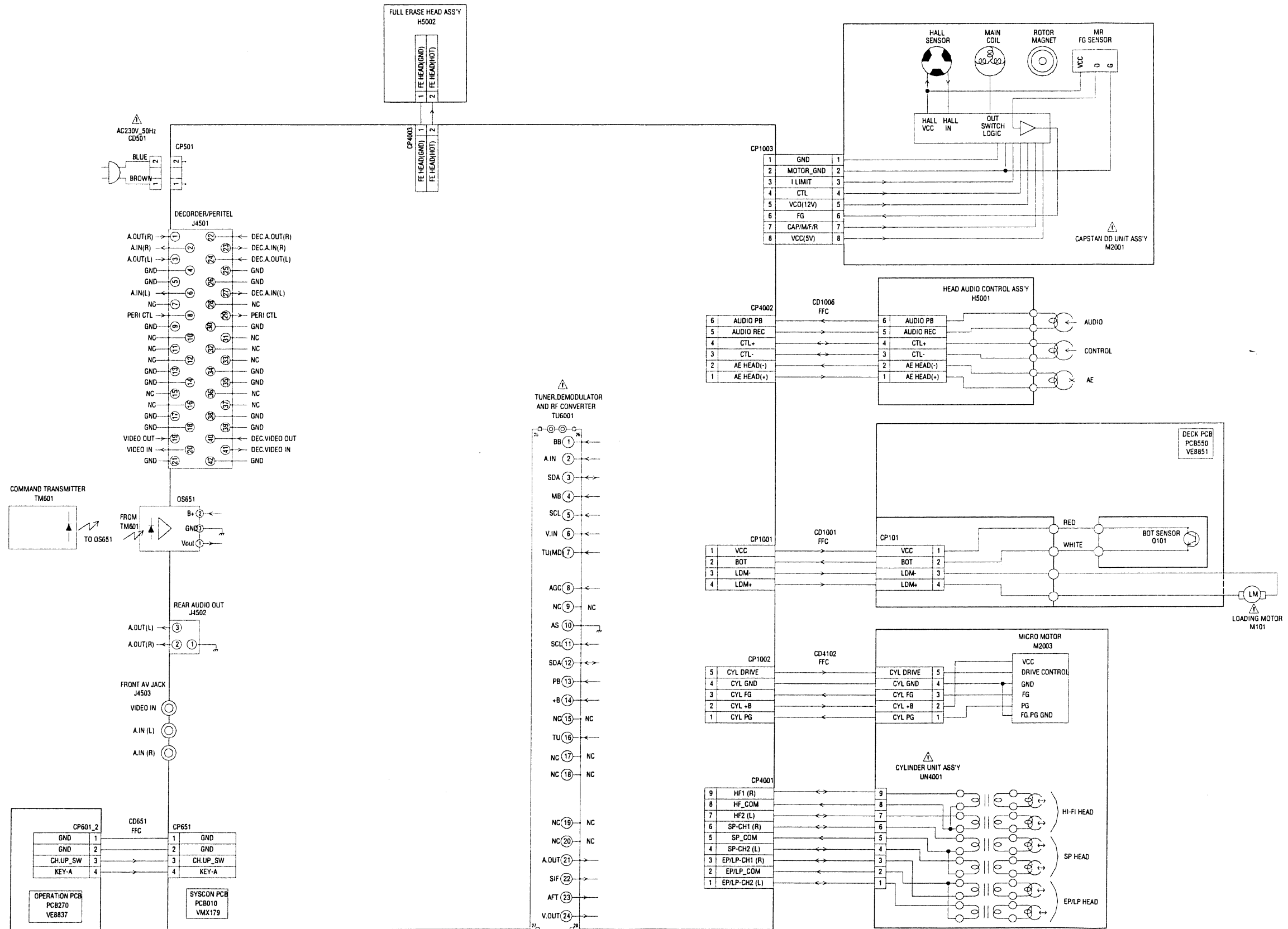
CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ, N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

INTERCONNECTION DIAGRAM



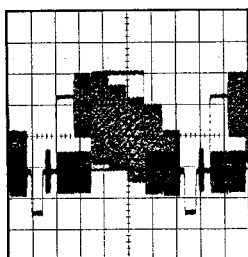
ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AU POINT DE VUE SÉCURITÉ N'UTILISER QUE CELLES DÉCRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

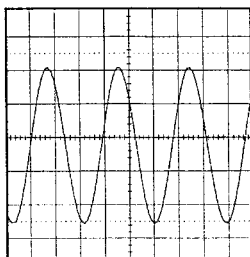
NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

WAVEFORMS

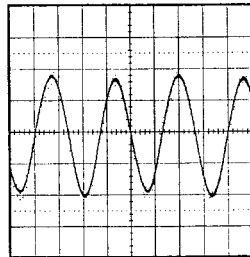
Y/C/AUDIO/HEAD AMP



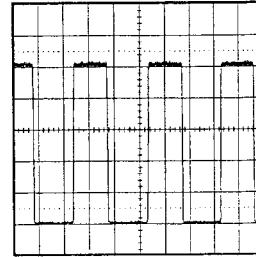
① REC
0.5V 10U/div



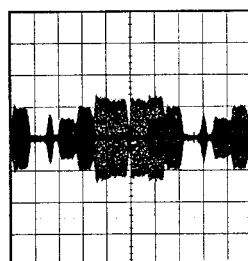
⑥ REC
10V 5U/div



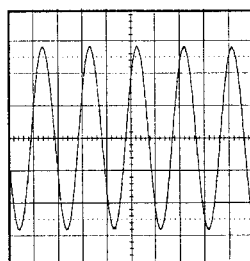
⑪ REC, PB
0.5V 0.5V/div



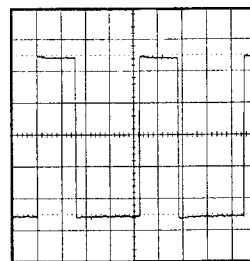
⑰ REC, PB
1V 0.5s/div



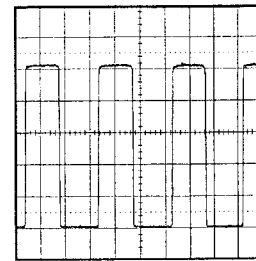
② PB
200mV 10U/div



⑦ REC, PB
200mV 0.5V/div

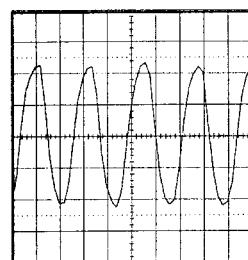


⑫ REC, PB
1V 5U/div

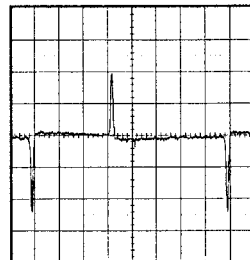


⑱ REC, PB
1V 0.5s/div

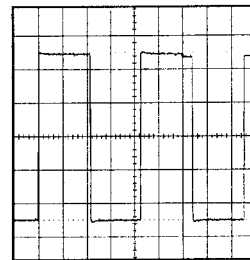
SYSCON/SERVO



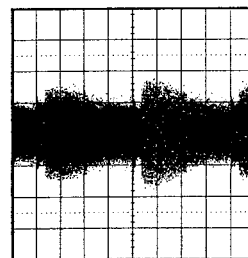
③ POWER ON
100mV 50T/div



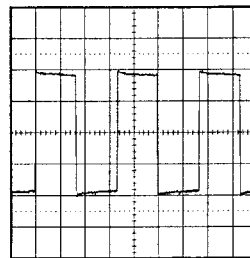
⑧ REC, PB
1V 5V/div



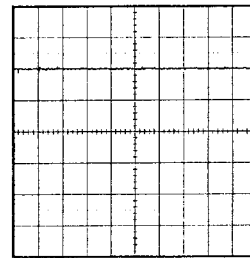
⑬ REC, PB
1V 5U/div



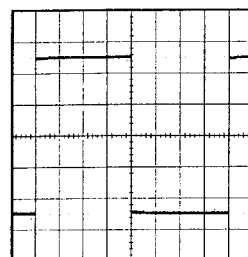
④ PB
100mV 5V/div



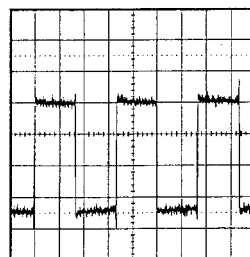
⑨ REC, PB
1V 0.5V/div



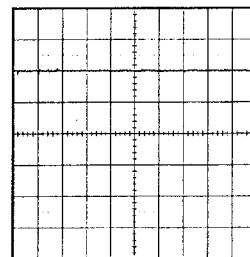
⑮ CASS. LESS
1V 10U/div



⑤ REC, PB
1V 5V/div



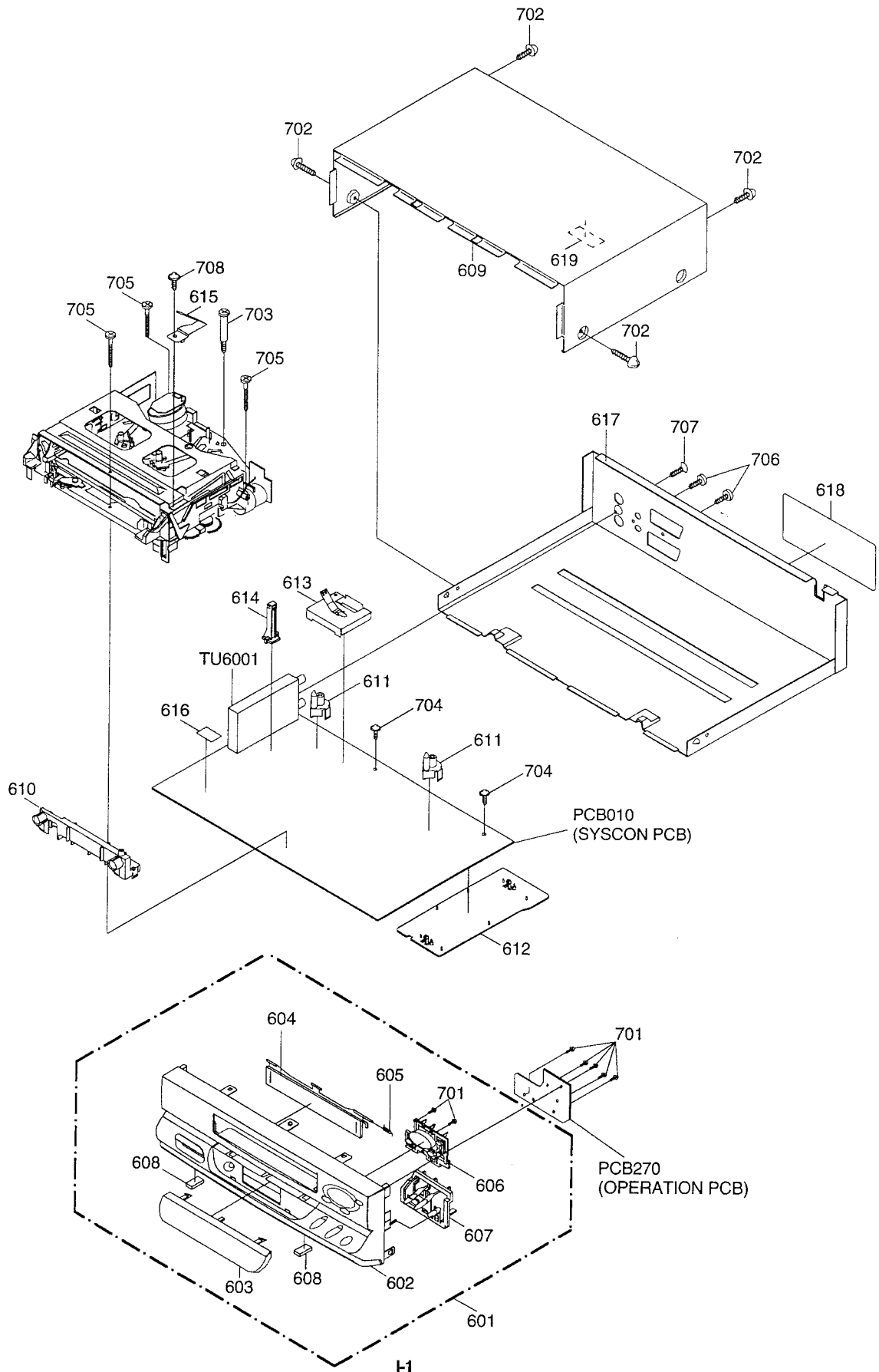
⑩ REC, PB
200mV 0.5V/div



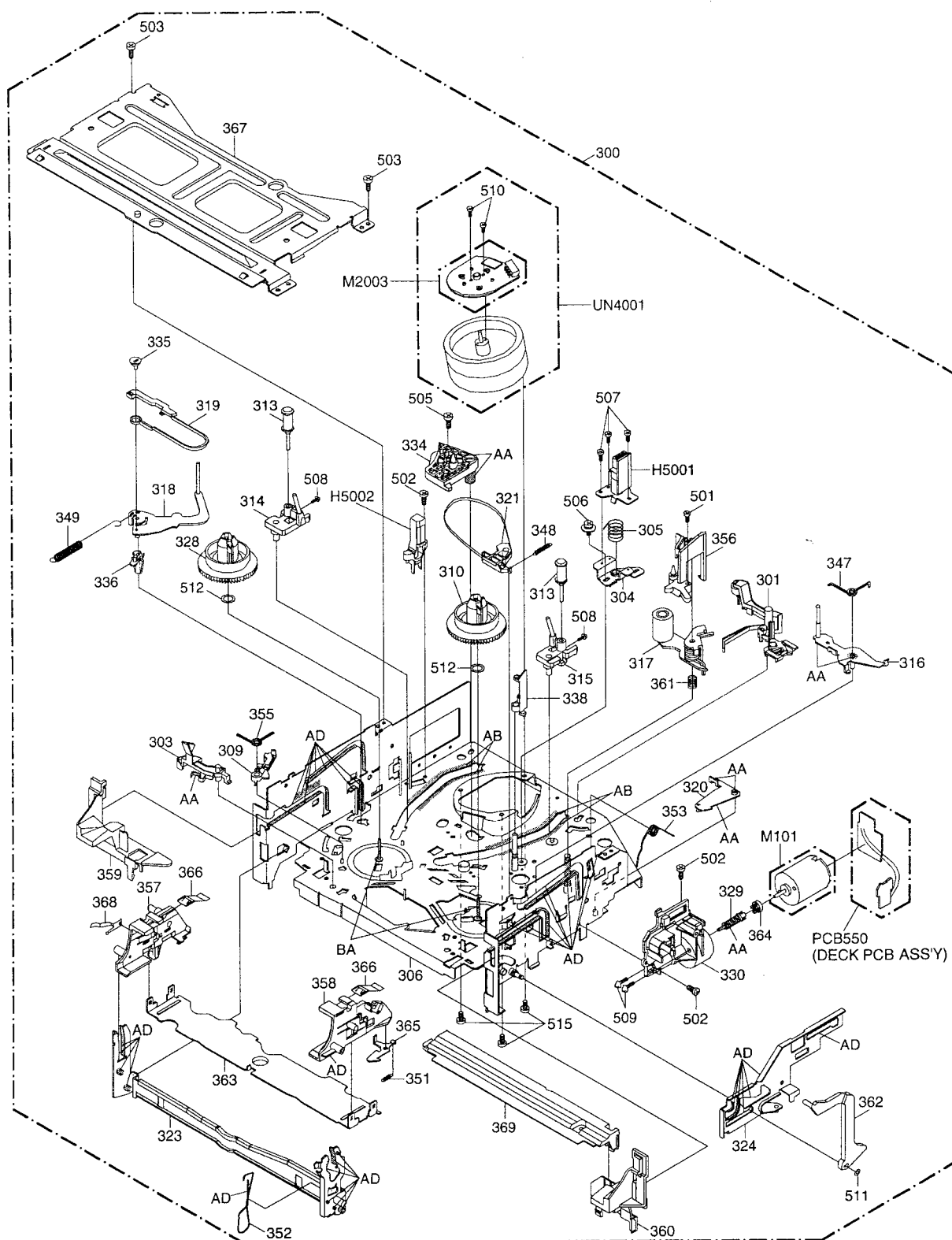
⑯ CASS. LESS
1V 10U/div

NOTE: The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

MECHANICAL EXPLODED VIEW



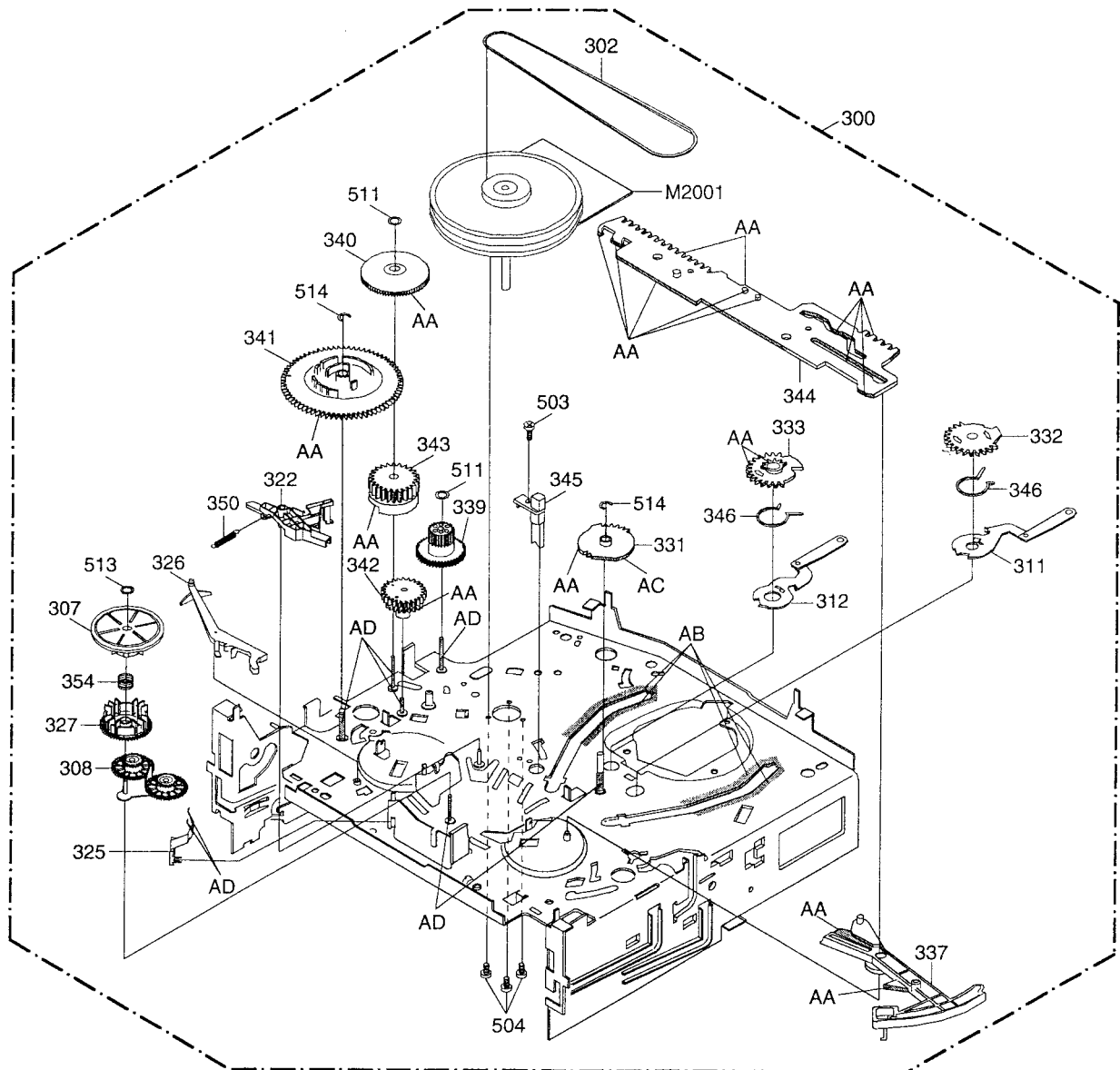
CHASSIS EXPLODED VIEW (TOP VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

CHASSIS EXPLODED VIEW (BOTTOM VIEW)



CLASS	PART NO.	MARK
GREASE	G-555G	AA
	G-488M	AB
	FL-721	AC
	MG-33	AD
OIL	FL OIL No. 6115	BA

NOTE: Applying positions AA, AB, AC, AD and BA for the grease or oil are displayed for this section. Check if the correct grease or oil is applied for each position.

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION			
601	A4D950B720	CABINET,FRONT ASS'Y			
602	701WPJB053	CABINET,FRONT			
603	711WPAA049	PLATE,DISPLAY			
604	712WPJA772	FLAP			
605	743WCAA001	SPRING,FLAP			
606	735WPJA038	BUTTON,DECK (A)			
607	735WPJA039	BUTTON,DECK (B)			
608	800WFA0041	CUSHION,LEG			
609	702WSBA014	CABINET,TOP			
610	701WPA0348	HOLDER,DECK (A)			
611	704WPA0007	HOLDER,DECK (R)			
612	755WPA0016	PLATE,COVER POWER			
613	752WSA0212	SHIELD,CASE HEAD AMP ASS'Y			
614	850P700036	HOLDER,EOT SENSOR			
615	753WUA0053	SPRING,EARTH 3PIN			
616	800WNA0006	SYSCON,PVC			(10x10xT0.3)
617	702WSAA011	PLATE,BOTTOM			
618	722A13A002	SHEET,RATING			
619	800WF00013	FC SHEET			(15x20xT3)
701	8110226804	SCREW,TAP TITE (P)	BIND	2.6x8	
702	8107240802	SCREW,TAP TITE (S)	BIND	4x8	
703	8146240644	SCREW,TAP TITE (S)	BIND	4x6	
704	8151230704	SCREW,TAP TITE (S)-R	BIND	3x7	
705	8107140B94	SCREW,TAP TITE (S)	PAN	4x29	
706	8110230604	SCREW,TAP TITE (P)	BIND	3x6	
707	8107230404	SCREW,TAP TITE (S)	BIND	3x4	
708	8107226604	SCREW,TAP TITE(S)	BIND	2.6x6	
---	JB5X0300	POLYBAG			
---	J4D95001	INSTRUCTION BOOK			
---	J4D95002	GUARANTEE CARD			
---	J4D95007	QUICK SET-UP SHEET			
---	791UHDA001	GIFT,SHEET			
---	792UHA0100	PACKAGE			
---	795UCA0016	CARTON,PAD			

CHASSIS REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
300	A4D938B420A	DECK ASSY A4D938B420A	501	8107126A04	SCREW,TAP TITE(S) PAN 2.6x10
301	850A500022	AHC ASS'Y	502	8107226804	SCREW,TAP TITE(S) PAN 2.6x10
302	850P200290	BELT,CAPSTAN (S)	503	8107226604	SCREW,TAP TITE(S) PAN 2.6x6
303	850P900710	LEVER,REC	504	8109126604	SCREW,TAP TITE(B) PAN 2.6x6
304	850P500083	BASE,AC HEAD	505	810A126804	SCREW/WASHER(A) M2.6x8
305	850P800324	SPRING,AC HEAD	506	810B126404	SCREW/WASHER(B) M2.6x4
306	850A000367	MAIN CHASSIS ASS'Y (S-Z)	507	8102120604	SCREW,PAN M2x6
307	850A200082	CLUTCH ASS'Y(S2)	508	8102120304	SCREW,PAN M2x3
308	850A200080	ARM IDLER ASS'Y (S)	509	8102130304	SCREW,PAN M3.0x3.0
309	850P600556	ARM,SS BRAKE (S)	510	810A123504	SEMS A M2.3x5.0
310	850P200292	REEL,T (S)	511	82P266005N	POLYSLIDER WASHER(CUT) 2.6x6.0xT0.5
311	850A300061	LOADING ARM S ASS'Y	512	82Q2647C5N	POLYSLIDER WASHER 2.6x4.7xT0.25
312	850A300062	LOADING ARM T ASS'Y	513	82P184505N	POLYSLIDER WASHER(CUT) 1.8x4.5xT0.5
313	850A400208	GUIDE ROLLER ASS'Y	514	83ETW30000	E-RING 3.0
314	850A400188	BASE,INCL S ASS'Y	515	810A126504	SCREW/WASHER(A) M2.6x5
315	850A400196	BASE,INCL T(S) ASS'Y	CP101	069R740018	CONNECTOR PCB SIDE 52044-0445
316	850A400199	P5-3 ARM ASS'Y(S)	H5001	1523D91034	HEAD (AUDIO CONTROL) HVMXA1072A
317	850A400205	PINCH ROLLER BLOCK	H5002	1543D02013	HEAD (FULL ERASE) HVFHP0032A
318	850A400202	TENSION ARM ASS'Y (WT)	M101	1596P78001	MOTOR (LOADING) MXN13FB11H
319	850A400184	TENSION BAND ASS'Y (S)	M2001	1594J98008	CAPSTAN DD UNIT EP15BC
320	850A400178	PINCH ROLLER LEVER ASS'Y	M2003	1589V11007	MICRO MOTOR EP14BD
321	850A600196	BRAKE T ASSY(S)	PCB550	A4C831B550	DECK PCB ASS'Y VE8851
322	850A600191	CAP BRAKE ASS'Y(S)	Q101	0000700320	TRANSISTOR,PHOTO RPT-38PB113
323	850A900213	LINK ASS'Y	UN4001	A4D4A1B500	CYLINDER UNIT ASSY A4D4A1B500
324	850A900216	LINK LEVER ASS'Y			
325	850P200284	LEVER,CLUTCH (S)			
326	850P200285	ACTUATOR,CLUTCH			
327	850P200298	GEAR,COUPLING(S2)			
328	850P200291	REEL,S (S)			
329	850P600541	WORM			
330	850P600563	BRACKET,MOTOR			
331	850P300178	GEAR,MAIN LOADING			
332	850P300179	GEAR,LOADING S			
333	850P300180	GEAR,LOADING T			
334	850P300187	HOLDER,LOADING GEAR (S-Z)			
335	850P400472	ADJUST,TENSION			
336	850P400492	HOLDER,TENSION			
337	850P400490	LEVER,TENSION			
338	850P400475	COVER,P4			
339	850P600543	GEAR,JOINT			
340	850P600544	GEAR,MIDDLE			
341	850P600554	CAM,MAIN (S)			
342	850P600546	CAM,P5			
343	850P600565	CAM,PINCH ROLLER			
344	850P600561	ROD,MAIN(S)			
345	850P700035	REFLECTOR,LED			
346	850P800318	SPRING,LOADING GEAR			
347	850P800334	SPRING,P5 (S)			
348	850P800335	SPRING,BRAKE T (S)			
349	850P800322	SPRING,TENSION			
350	850P800336	SPRING,CAP BRAKE (S)			
351	850P800342	SPRING,LOCKER (S)			
352	850P800326	SPRING,LINK			
353	850P800328	SPRING,DAMPER			
354	850P800330	SPRING,RING			
355	850P800337	SPRING,SS BRAKE (S)			
356	850P900680	OPENER CASS			
357	850P900731	CASS SIDE L			
358	850P900732	CASS SIDE R			
359	850P900728	TAPE GUIDE L(P,R)			
360	850P900729	TAPE GUIDE R			
361	850P800341	SPRING,P/R ARM			
362	850P900688	LEVER,FLAP			
363	850P900690	CASS HOLDER			
364	850P600540	DRIVER,WORM			
365	850P900713	LOCKER,R2			
366	850P900694	SPRING,PACK			
367	850P900695	BRACKET, TOP			
368	850P900696	SPRING,CASS EARTH			
369	850P000467	COVER,DECK			

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION		REF. NO.	PART NO.	DESCRIPTION	
RESISTORS				TRANSISTORS			
R503	R655U4010J	R, FUSE	1 OHM 1/4W	Q512	TB3001201S	TRANSISTOR, SILICON	2SB1201S
R504	R3X181221J	R, METAL OXIDE	220 OHM 1W	Q513	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
R505	R3X18A823J	R, METAL	82K OHM 2W	Q651	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
R507	R3X1811R8J	R, METAL	1.8 OHM 1W	Q1001	0002M00570	PHOTO COUPLER	SG-260
R518	R3X181220J	R METAL OXIDE	22 OHM 1W	Q1002	0000100380	PHOTO TRANSISTOR	PNA2604M010R
R521	R65584221J	R, FUSE	220 OHM 1/4W	Q1003	0002M00570	PHOTO COUPLER	SG-260
CAPACITORS				Q1004	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
C501	P2122B104M	CMP	0.1 UF 250V ECQUL	Q1005	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
C503	CB3LE0ML3M	CC	0.0033UF 250V	Q1006	0002700530	PHOTO COUPLER	RPI-352Q01R
C507	CB3930ML3M	CC	0.0033UF 250V	Q1007	0002700530	PHOTO COUPLER	RPI-352Q01R
C508	E02AFH680M	CE	68 UF 400V	Q1008	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
DIODES				Q1009	TNYJC05001	COMPOUND TRANSISTOR	DTC124EKAT146
D502	D1VT001330	DIODE, SILICON	1SS133T-77	Q4001	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA or
D503	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
D504	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	Q4002	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA or
D505	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
D506	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	Q4003	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146
D507	D23TGP15D0	DIODE, SILICON	RGP15D-G23	Q4004	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA or
D508	D1VT001330	DIODE, SILICON	1SS133T-77	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	
D511	D2LTP10KE0	DIODE, SILICON	RGP10KE-G3	Q4005	TPYJC05001	COMPOUND TRANSISTOR	DTA124EKAT146
D512	D97U06R21B	DIODE, SILICON	MTZJ6.2B T-77 or	Q4006	TC3T033310	TRANSISTOR, SILICON	2SC3331(S,T,U)-A or
	D92UA6R2B2	DIODE, ZENER	RD6.2ES AB2	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)	
D513	D97U030301C	DIODE, ZENER	MTZJ33C T-77	Q4007	TC3T033310	TRANSISTOR, SILICON	2SC3331(S,T,U)-A or
D514	D1VT001330	DIODE, SILICON	1SS133T-77	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2)	
D515	D1VT001330	DIODE, SILICON	1SS133T-77	Q4501	TNYJB05001	COMPOUND TRANSISTOR	DTC114EKAT146
D516	D2LKB340L0	DIODE, SCHOTTKY	SB340L-6737	Q4801	T8YJ2412K0	TRANSISTOR, SILICON	2SC2412KT146(R,S)
D517	D23TPG06D0	DIODE, SILICON	RMPG06D-G3	Q4802	T6YJ1037K0	TRANSISTOR, SILICON	2SA1037AKT146(R,S)
D518	D28T11ESN1	DIODE, SILICON	11ES1N-TA1B2	COILS & TRANSFORMER			
D519	D1VT001330	DIODE, SILICON	1SS133T-77	L501	021W7A220K	COIL	22 UH or
D521	D93T11601A	DIODE, ZENER	TMPG06-16A-G3		021W66220M	COIL, CHOKE	22 UH
D522	D97U04R71B	DIODE, ZENER	MTZJ4.7B T-77	L502	021W7A220K	COIL	22 UH or
D523	D97U03001B	DIODE, ZENER	MTZJ30B T-77		021W66220M	COIL, CHOKE	22 UH
D524	D23TPG06D0	DIODE, SILICON	RMPG06D-G3	L503	029T000083	COIL, LINE FILTER	0R3A433F20
D526	D28TQS04N0	DIODE, SCHOTTKY	11EQS04N-TA1B2	L4001	0316160028	COIL, BIAS OSC	1616002
D527	D97U01201B	DIODE, ZENER	MTZJ12B T-77	L4002	02167F101J	COIL	100 UH
D528	D2LFRGP30D	DIODE, RECTIFIER	RGP30DL-6801	L4003	02167F101J	COIL	100 UH
D529	D2LTGP15M0	DIODE, RECTIFIER	GP15M-G23	L4004	02167F101J	COIL	100 UH
D1001	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	L4005	02167F101J	COIL	100 UH
D1002	D93T11201A	DIODE, ZENER	TMPG06-12A-G3	L4006	0316160018	COIL, BIAS OSC	1616001
D1003	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	L4007	021LA6271K	COIL	270 UH
D1004	D1VT001330	DIODE, SILICON	1SS133T-77	L4008	02167F101J	COIL	100 UH
D1005	0010600060	LED	SID1050CM	L4009	021LA6120K	COIL	12 UH
D1006	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	L4010	021LA6221K	COIL	220 UH
D1007	D1VT001330	DIODE, SILICON	1SS133T-77	L4011	02167F101J	COIL	100 UH
D1009	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	L4012	021LA6390K	COIL	39 UH
D1010	D2LXE65800	DIODE, SILICON	1N4005E-6580-G23	L4013	02167F101J	COIL	100 UH
D4001	D1VT001330	DIODE, SILICON	1SS133T-77	L4502	02167F101J	COIL	100 UH
D4003	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77 or	L4511	021LA6100K	COIL	10 UH
	D97U06R21A	DIODE, ZENER	MTZJ6.2A T-77 or	L4512	021LA6100K	COIL	10 UH
	D97U06R21C	DIODE, ZENER	MTZJ6.2C T-77	L4513	021LA6100K	COIL	10 UH
D4503	D97U01501B	DIODE, ZENER	MTZJ15B T-77	L4801	02167F101J	COIL	100 UH
D4505	D97U06R81B	DIODE, ZENER	MTZJ6.8B T-77 or	L4802	02167F101J	COIL	100 UH
	D97U06R21A	DIODE, ZENER	MTZJ6.2A T-77 or	L4803	02167F101J	COIL	100 UH
	D97U06R21C	DIODE, ZENER	MTZJ6.2C T-77	L4804	021LA6330K	COIL	33 UH
ICS				L4805	021LA6220K	COIL	22 UH
IC501	IQQ90431L0	IC	NJM431L	L4806	021LA6390K	COIL	39 UH
IC651	I07F529770	IC	BU2977FS	L5501	02167F101J	COIL	100 UH
IC1001	I07SQ69550	IC	BA6955N	L5502	02167F101J	COIL	100 UH
IC1002	I56F57051A	IC	OEC7051A	L6001	02167F220J	COIL	22 UH
IC1003	IC7J0311A0	IC	R3111N311A/C-TR	L6002	02167F101J	COIL	100 UH
IC1099	A4D938B015	IC	S-24C08ADPA-01	T501	0481300029	TRANSFORMER, SWITCHING	8130002
IC4001	I04F38217F	IC	HA118217F	JACKS			
IC4501	I03F071580	IC	LA7158M	J4501	063G100041	SOCKET, 21PIN	035_0_8083_00
IC4502	I0QF021500	IC	NJM2150AM	J4502	0602411008	RCA, JACK	JPJ1195-010320
IC4801	I53F4775M0	IC	LC74775M	J4503	0607431012	JACK, RCA 3.5	LPR1251-0500
IC5501	I0KF79605H	IC	TDA9605H	SWITCHES			
IC6601	I0KFA9873H	IC	TDA9873H	SW601	0504201T32	SWITCH, TACT	SKQNAED010
TRANSISTORS				SW602	0504201T32	SWITCH, TACT	SKQNAED010
Q501	TD3T007340	TRANSISTOR, SILICON	2SD734(E,F)-AA or	SW603	0504201T32	SWITCH, TACT	SKQNAED010
Q503	TC5T021204	TRANSISTOR, SILICON	2SC2120Y(TPE2)	SW604	0504201T32	SWITCH, TACT	SKQNAED010
Q504	0002500560	PHOTO COUPLER	TLP621(D4-GR-LF2	SW605	0504201T32	SWITCH, TACT	SKQNAED010
Q505	TNYJA05001	COMPOUND TRANSISTOR	DTC143EKAT146	SW606	0504201T32	SWITCH, TACT	SKQNAED010
Q506	TBWT009260	TRANSISTOR, SILICON	2SB926(S,T)-AA or	SW607	0504201T32	SWITCH, TACT	SKQNAED010
	TAAT01273Y	TRANSISTOR, SILICON	KTA1273_Y	SW608	0504201T32	SWITCH, TACT	SKQNAED010
Q511	TC5T018154	TRANSISTOR, SILICON	2SC1815Y(TPE2) or	SW1001	0508221001	SWITCH (LEAF)	SPVF130100
	TCATC31980	TRANSISTOR, SILICON	KTC3198-AT(Y,GR)	P.C. BOARD ASSEMBLIES			
				PCB010	A4D950B01A	PCB ASSY	VMX179C

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	
P.C.BOARD ASSEMBLIES			
PCB270	A4D918B27A	PCB ASS'Y	VE8837B
PCB550	A4C831B550	SEE CHASSIS REPLACEMENT PARTS LIST	
MISCELLANEOUS			
B501	024AT03655	CORE, BEADS	BL01RN1-A63T6
B502	024AT03655	CORE, BEADS	BL01RN1-A63T6
BT601	1412004008	BATTERY, MANGAN	R03(AB)E_20_T
CD501	1206655816	CORD, AC	06655816
CD651	122F040904	CORD, JUMPER	2F040904
CP501	069X320409	CORD, UX CONNECTOR	B2P3-VH
CP601	069J740019	CONNECTOR PCB SIDE	IMSA-9604S-04Z13
CP651	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14
CD1001	122F040904	CORD, JUMPER	2F040904
CD1006	122F061501	CORD, JUMPER	2F061501
CD4102	122F051702	CORD, JUMPER	2F051702
CD6002	06CDL02002	RF, CABLE PAL FTZ	CDL02002
CP1001	069J740029	CONNECTOR PCB SIDE	IMSA-9604S-04Z14
CP1002	069J750029	CONNECTOR PCB SIDE	IMSA-9604S-05Z14
CP1003	069J7280590	CONNECTOR PCB SIDE	TMC-J08P-B1
CP4001	069J7290620	CONNECTOR PCB SIDE	TOC-C09X-A1
CP4002	069J760029	CONNECTOR PCB SIDE	IMSA-9604S-06Z14
CP4003	069J120320	CONNECTOR PCB SIDE	TMC-T02X-E1
CUS011	800WF00019	CUSHION-C	
CUS012	800WF00004	CUSHION-A	
F501	080PT1R602	FUSE	21801.6
FH501	06710T0006	HOLDER,FUSE	EYF-52BC
FH502	06710T0006	HOLDER,FUSE	EYF-52BC
OS651	077Q000018	REMOTE RECEIVER	PIC26043LO
TM601	07660DK030	TRANSMITTER	SBHR00503A
TU6001	0162K01024	RF, UNIT	TCMB0601PD11D
	0162601021	RF, UNIT	TMDG2-603A
V651	096779R005	TUBE FLUORSCENT DISPL	7-MT-201GA
X1001	100CT01207	CRYSTAL HC-49/U-S	12MHz
X1002	100DA32R01	CRYSTAL DT-26	32.768KHz
X4001	100CT4R407	CRYSTAL HC-49/U	4.433619MHz
X6602	100CT4R009	CRYSTAL HC-49/U	4MHz

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

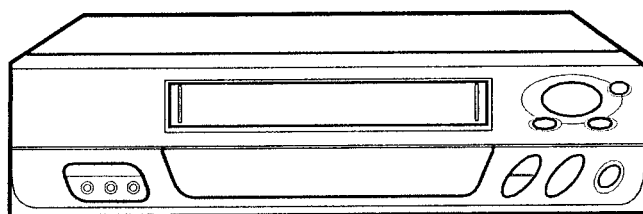
SPEC.NO.	M4D9-50B
O/R NO.	U094510

TEVION[®]

MD9025 SILVER

SERVICE MANUAL

VIDEO CASSETTE RECORDER



**SUPPLEMENT
CHASSIS CODE A**

This SUPPLEMENT must be used together SERVICE MANUAL for MD9025.
All other test and repair procedures are as shown in the ORIGINAL MANUAL.
Please file this SUPPLEMENT with the ORIGINAL VERSIONS.

ELECTRICAL REPLACEMENT PARTS LIST

REF. NO.	MD9025		MD9025 SILVER	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
TM601	07660DK030	TRANSMITTER SBHR00503A	07660DK040	TRANSMITTER SBHR00504A

MECHANICAL REPLACEMENT PARTS LIST

REF. NO.	MD9025		MD9025 SILVER	
	PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
601	A4D950B720	CABINET, FRONT ASS'Y	A4D953B720	CABINET, FRONT ASS'Y
602	701WPJB053	CABINET, FRONT	701WPJB080	CABINET, FRONT
604	712WPJA772	FLAP	712WPJA793	FLAP
606	735WPJA038	BUTTON, DECK (A)	735WPJA280	BUTTON, DECK (A)
607	735WPJA039	BUTTON, DECK (B)	735WPJA281	BUTTON, DECK (B)
609	702WSBA014	CABINET, TOP	702WSBA025	CABINET, TOP

SPEC.NO.	M4D9-53B
O/R NO.	U0X4542